

FIG. 1

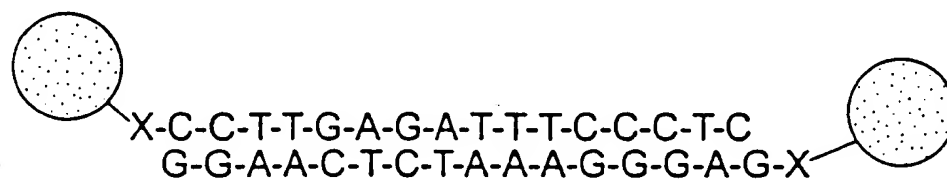
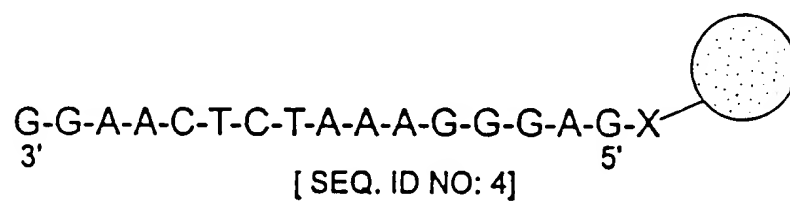
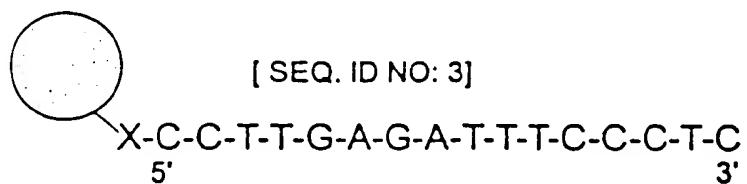


FIG.2

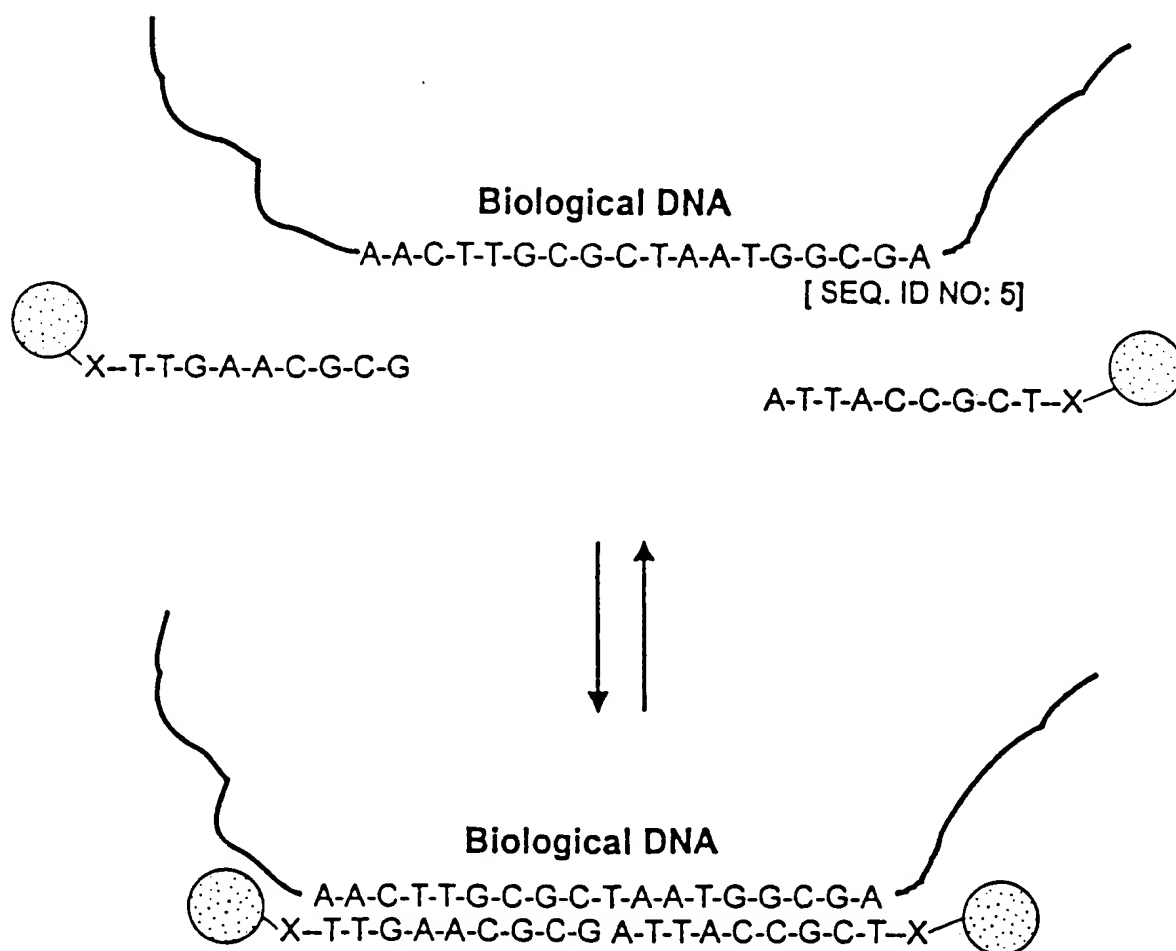


FIG.3

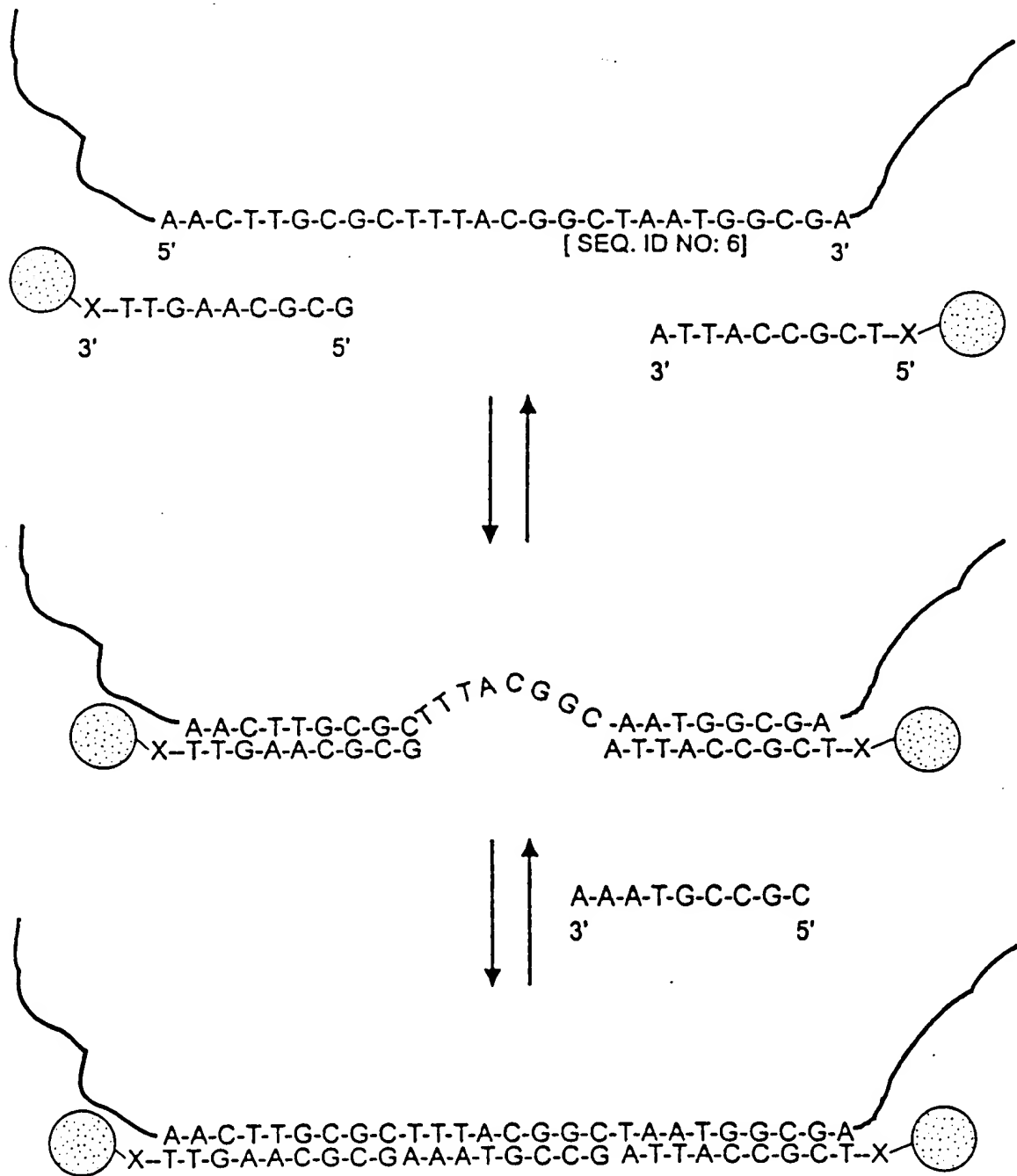


FIG. 4

Linking oligonucleotide

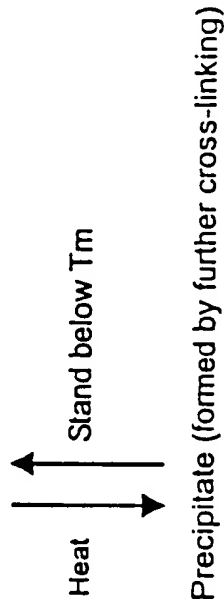
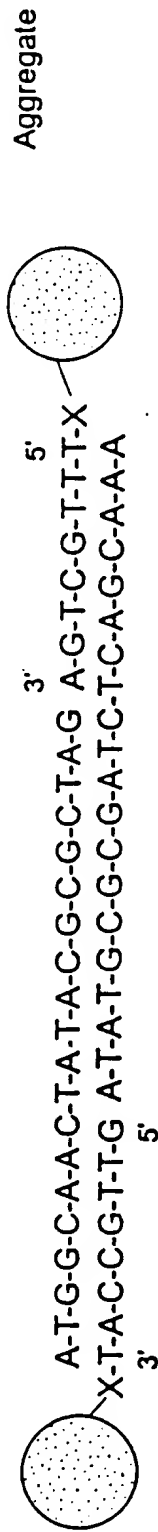
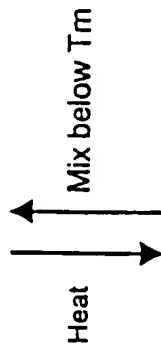
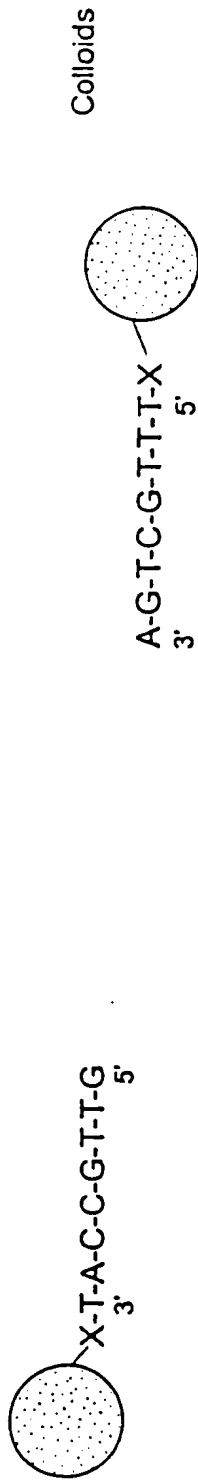
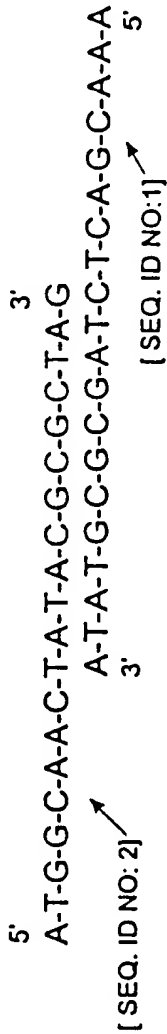


FIG.5

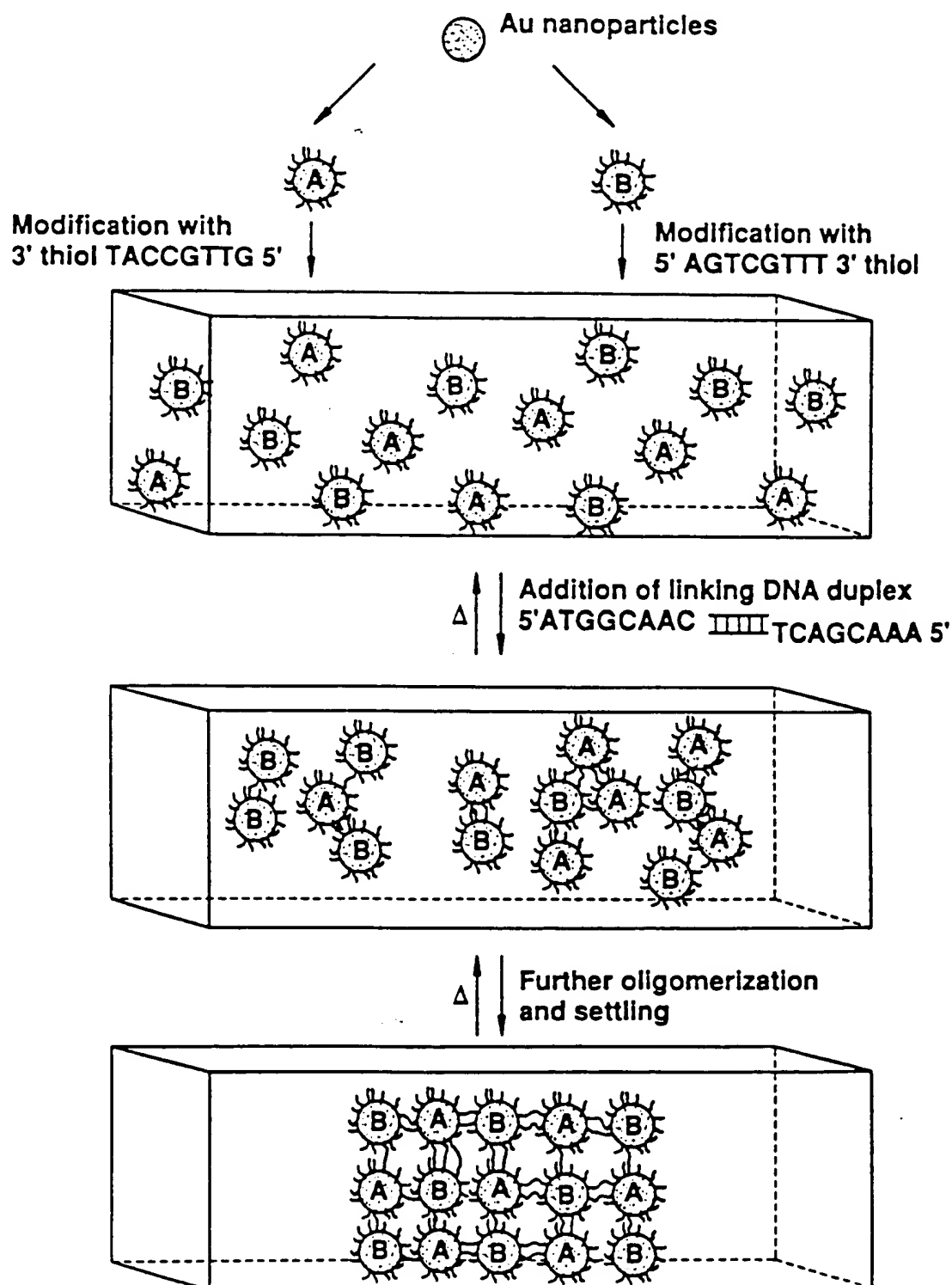




FIG. 6A FIG. 6B FIG. 6C

FIG. 7

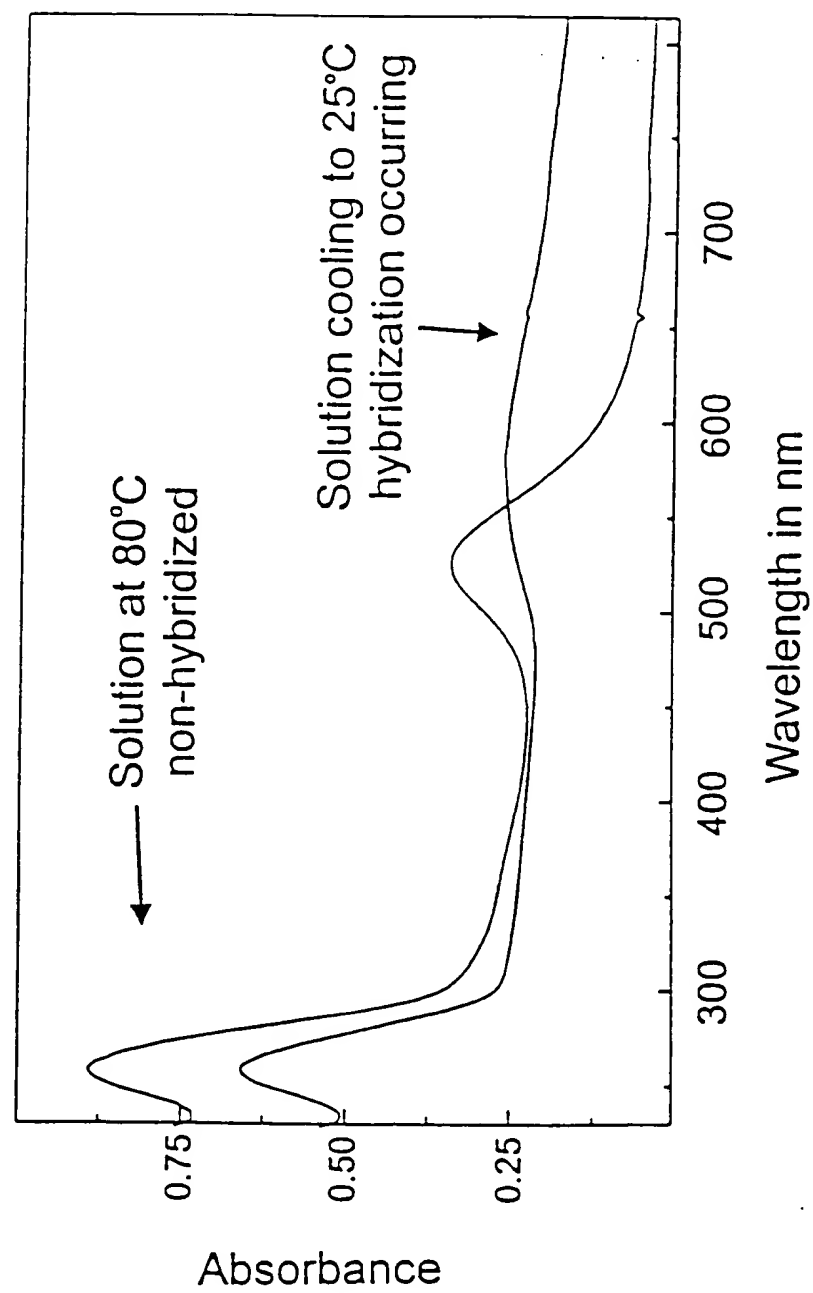


FIG. 8A

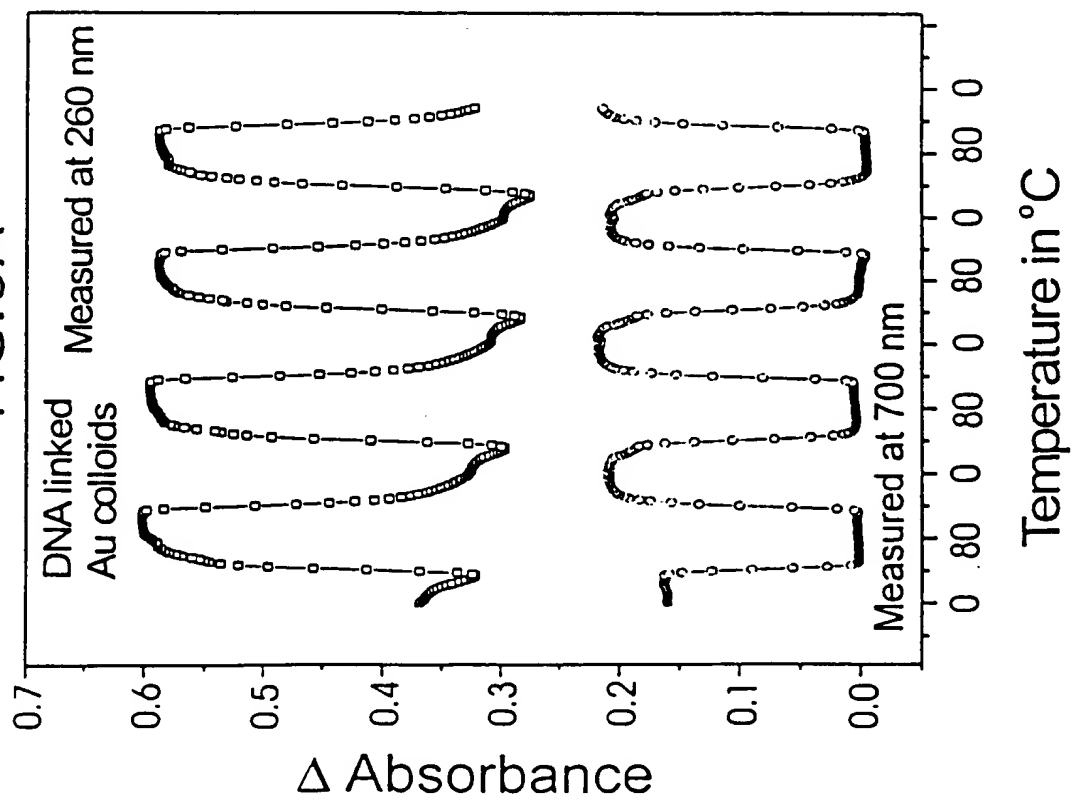


FIG. 8B

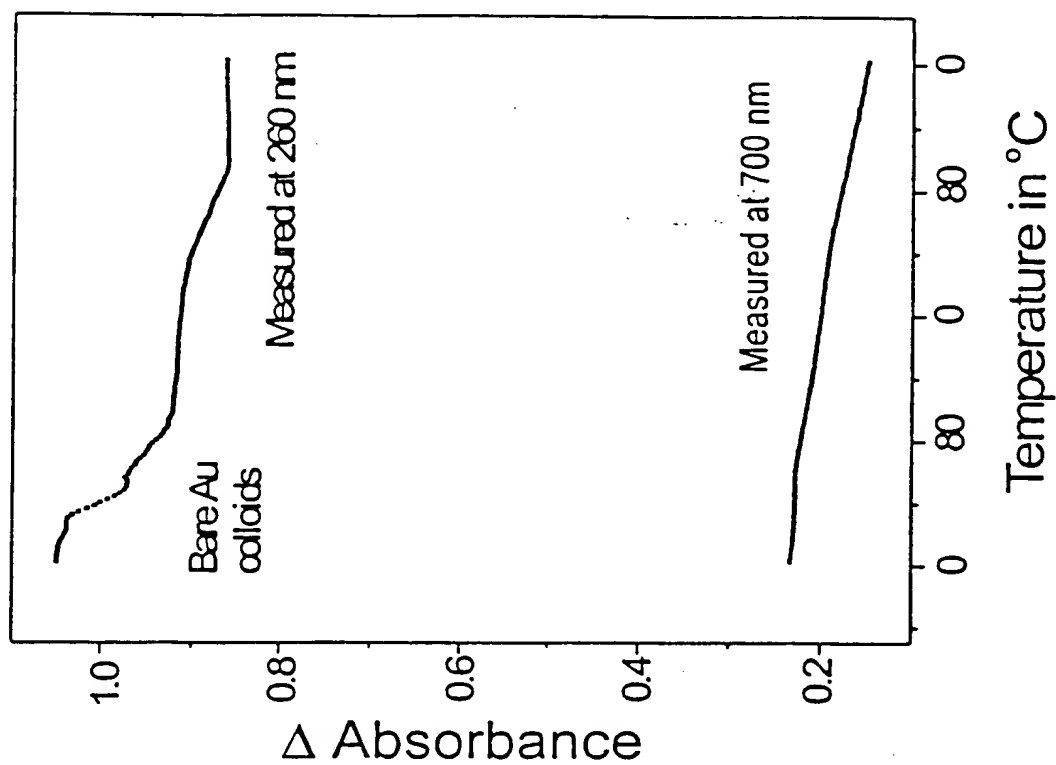




FIG.9A

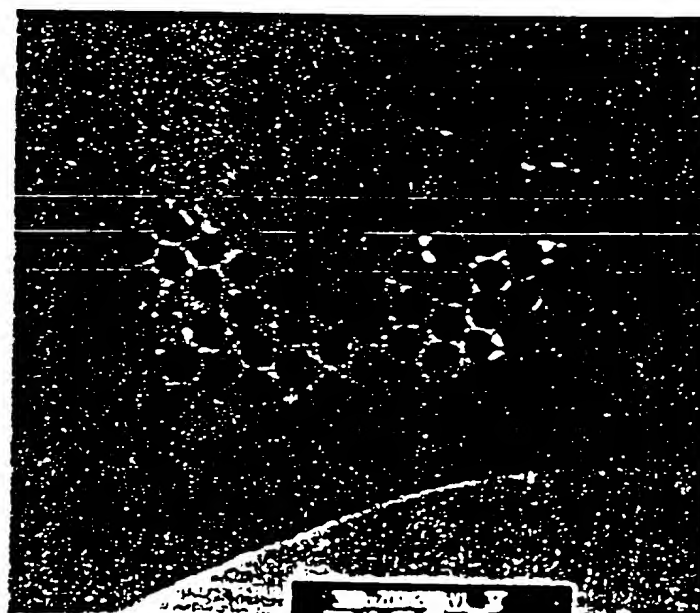


FIG.9B

FIG.10

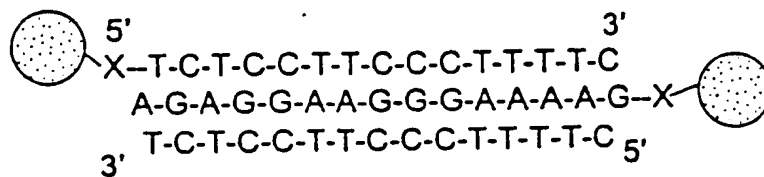
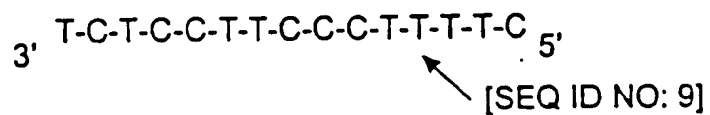
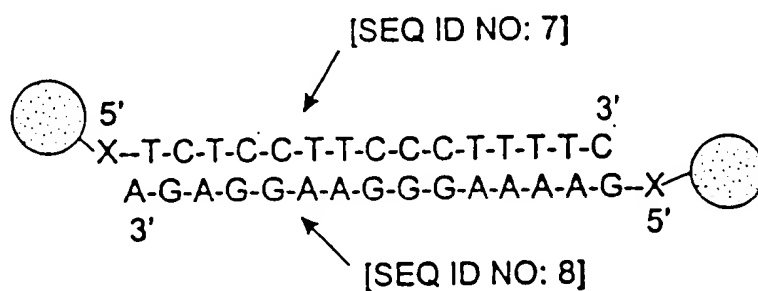


FIG. 11

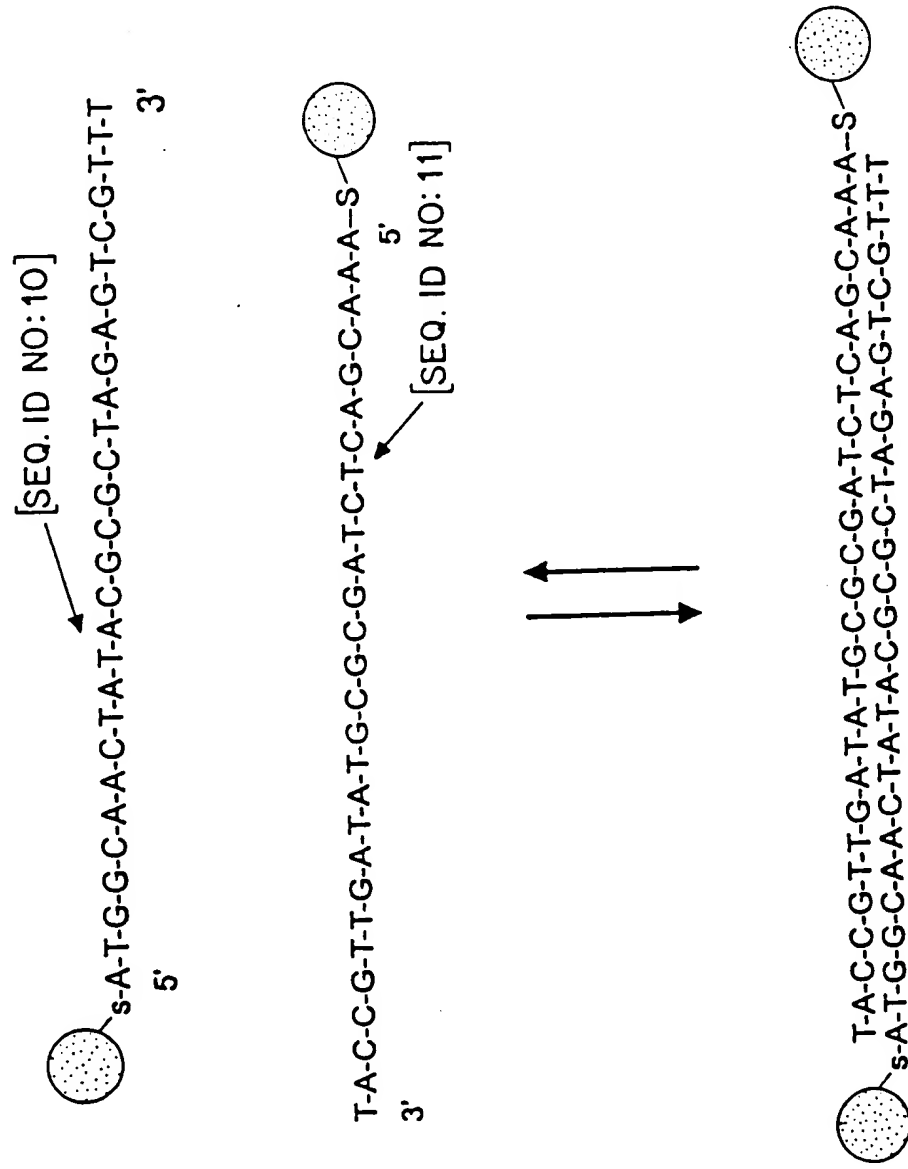


FIG.12A

Complementary Target

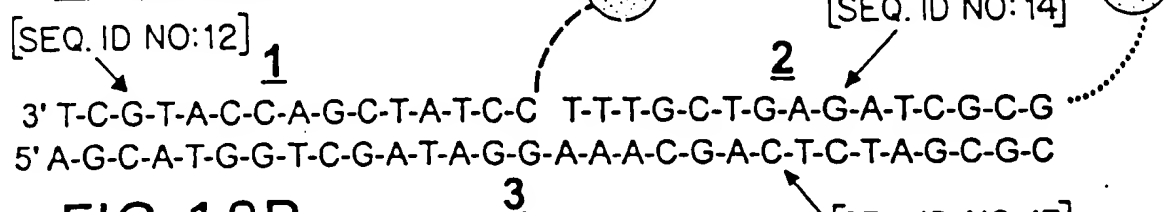


FIG.12B

Probes without Target



FIG.12C

Half Complementary Target

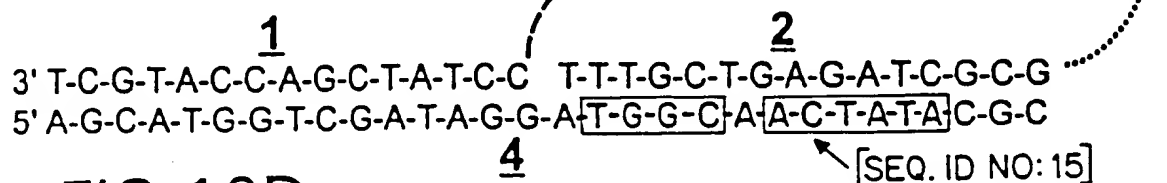


FIG.12D

Target - 6 bp

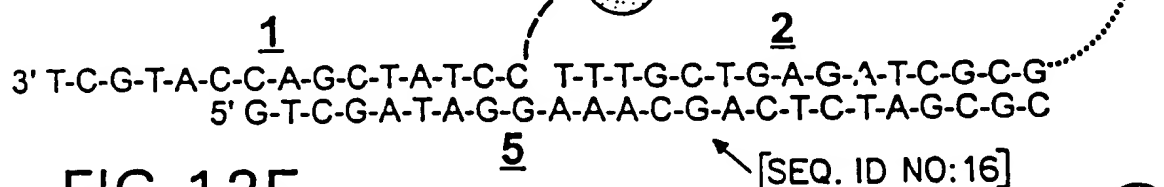


FIG.12E

One bp Mismatch

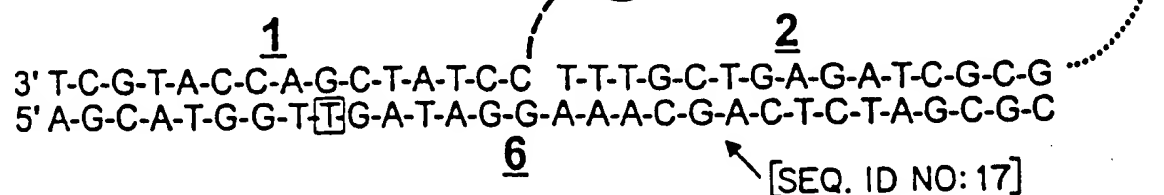


FIG.12F

Two bp Mismatch

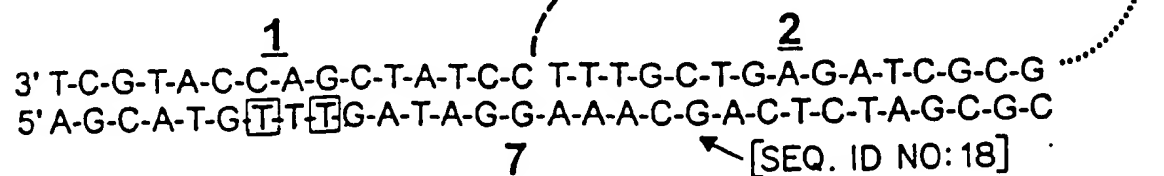


FIG.13A

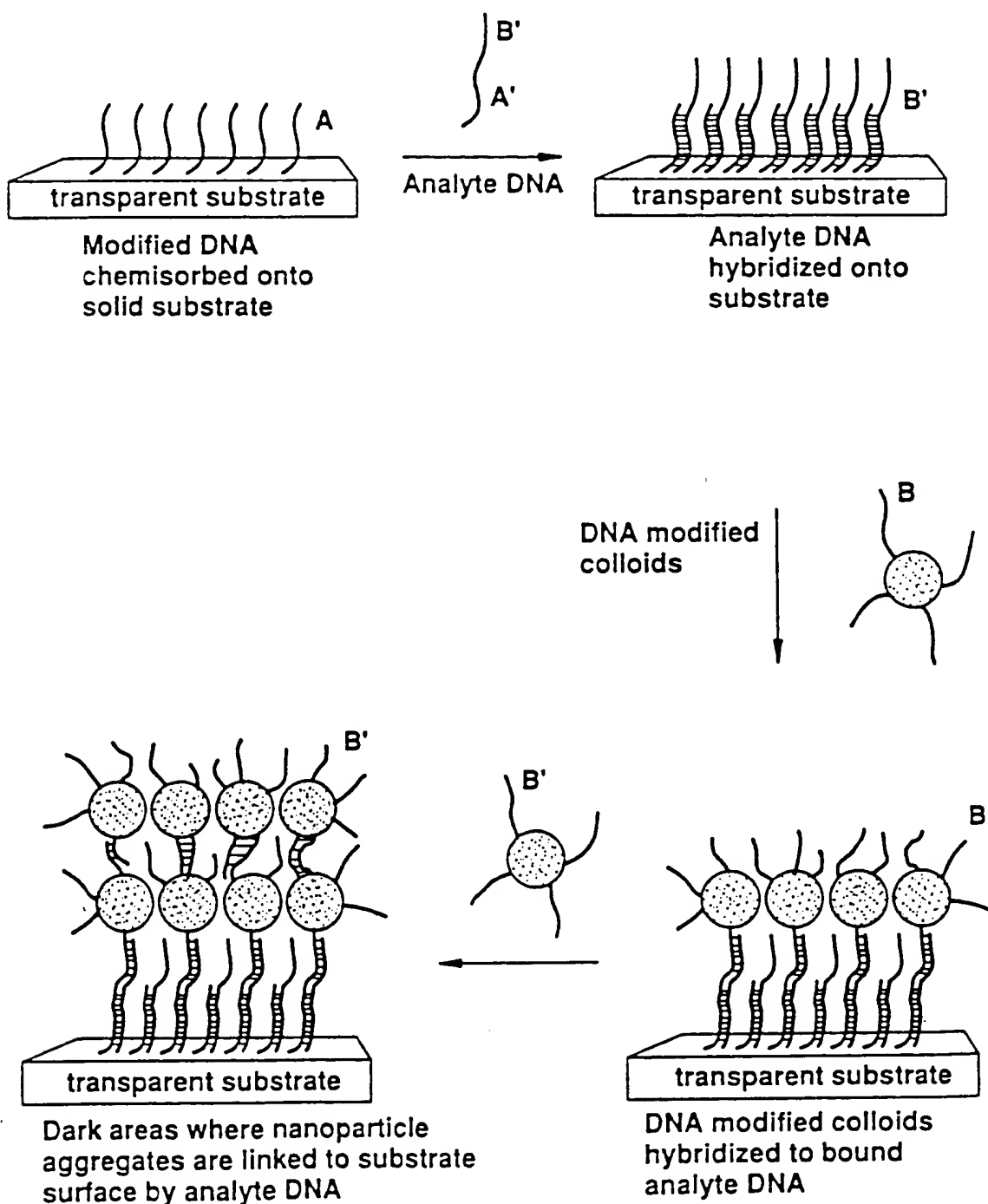


FIG.13B

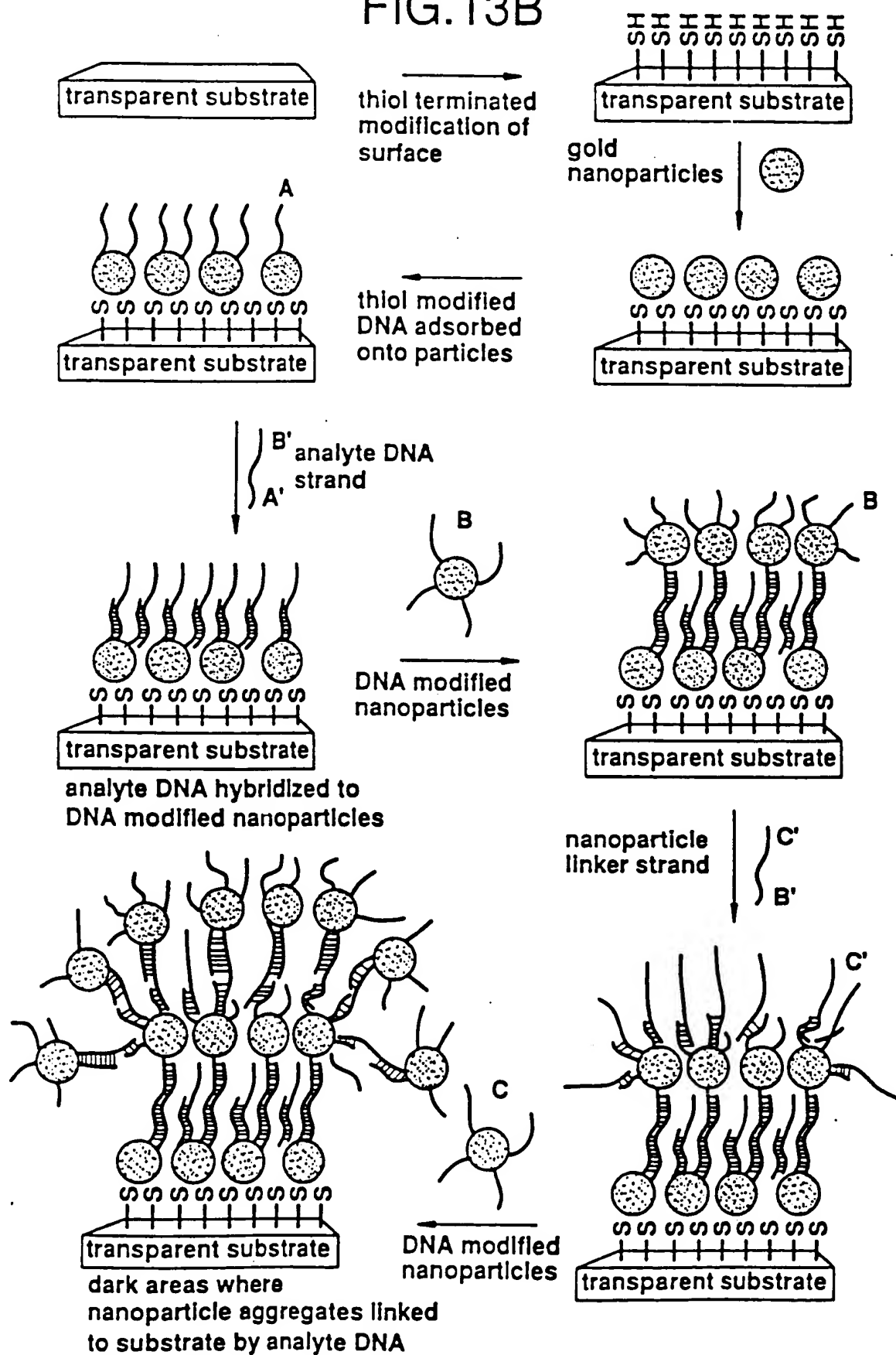


FIG.14A

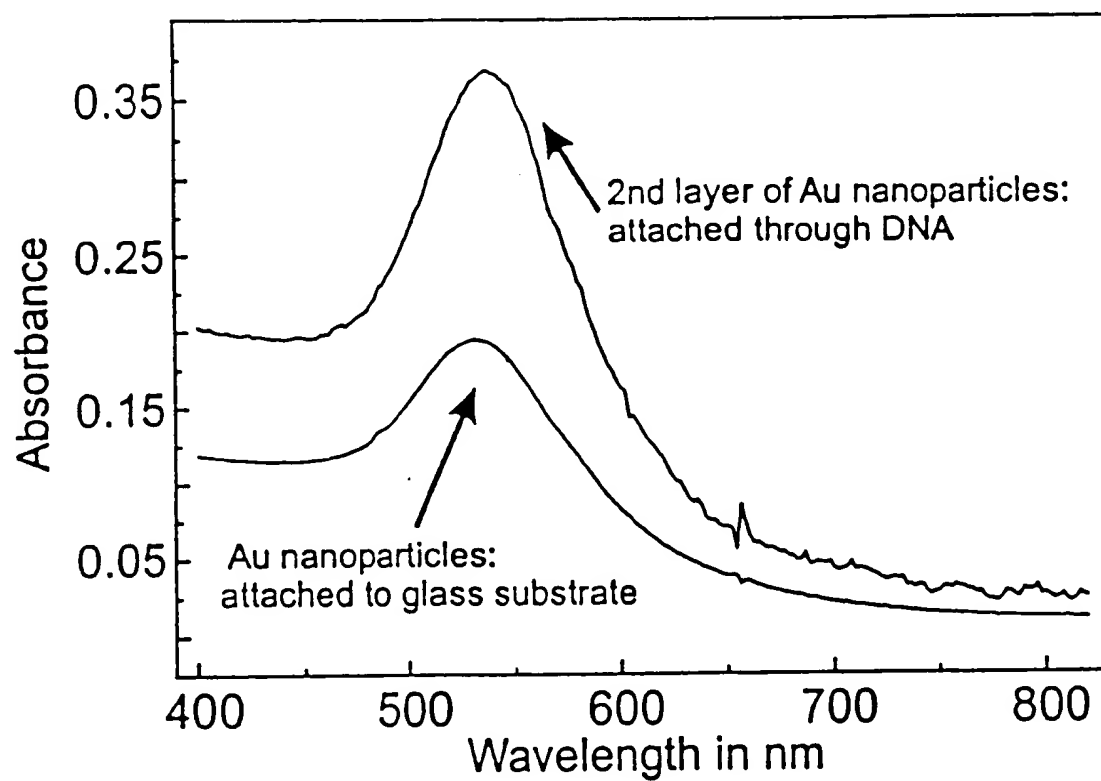


FIG.14B

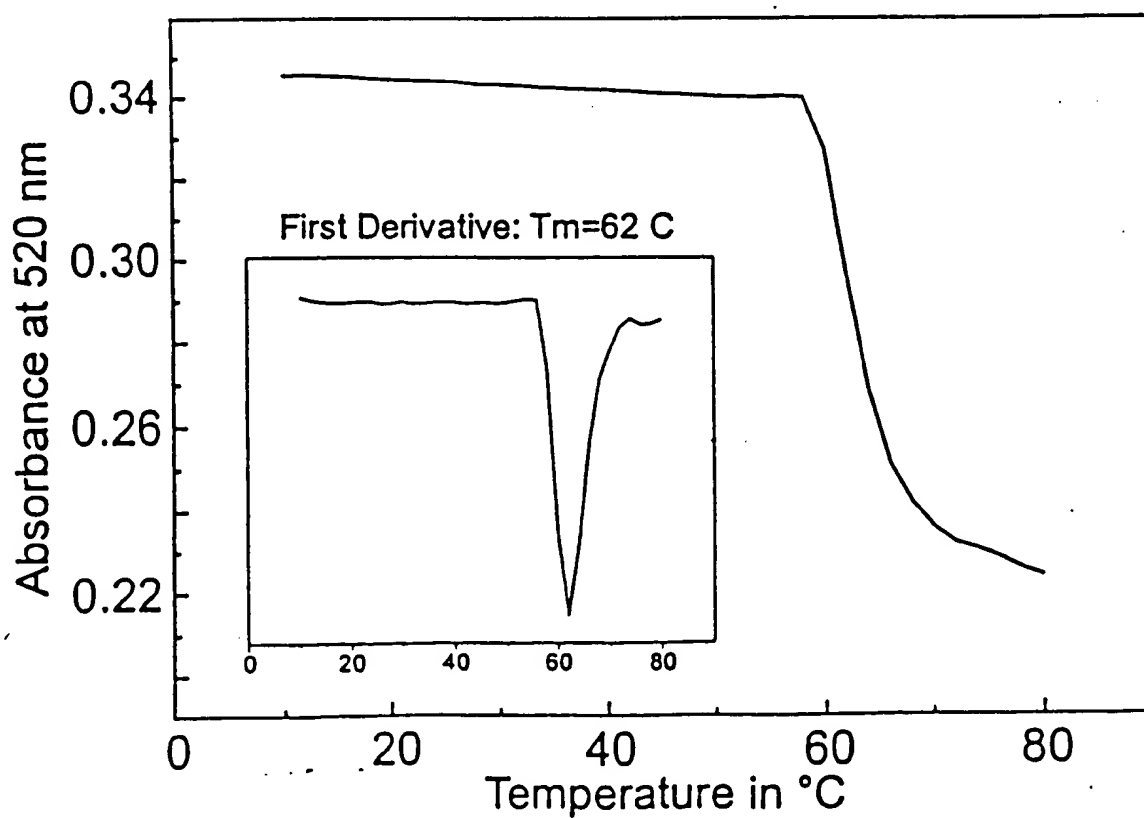


FIG15A

Probes with No Target

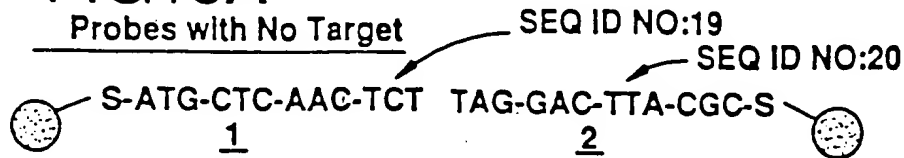


FIG15B

Half-Complementary Target

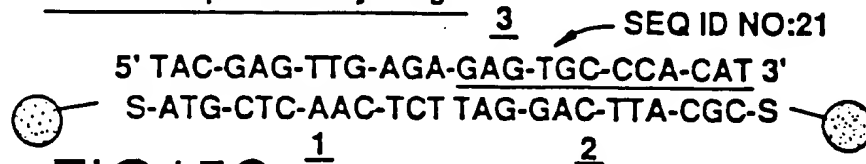


FIG15C

Complementary Target

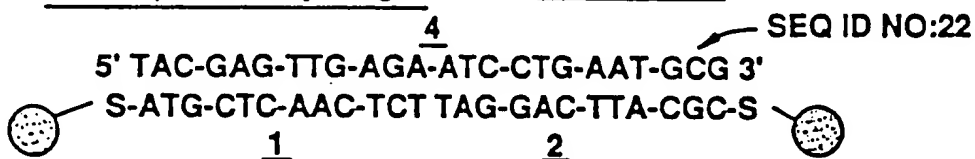


FIG15D

ONE Base-Pair Mismatch at Probe Head

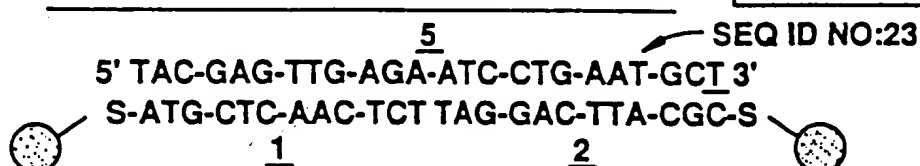


FIG15E

ONE Base-Pair Mismatch at Probe Tail

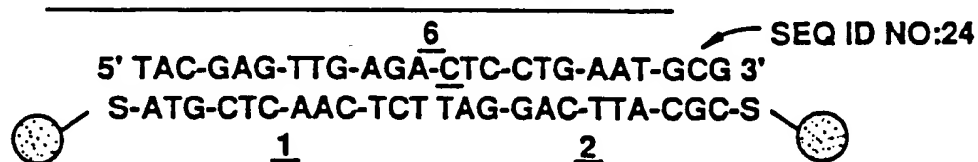


FIG15F

ONE Base Deletion

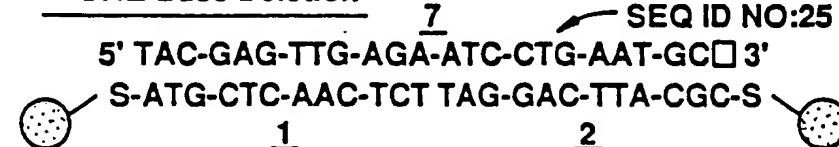


FIG15G

ONE Base-Pair Insertion

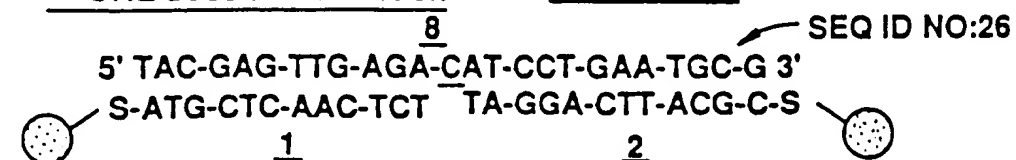


FIG. 16A

24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'
 —S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S —

1

2

FIG. 16B

48 Base Template with Complementary 24 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'
 —S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT TAG-GAC-TTA-CGC-S —

1

2

FIG. 16C

72 Base Template with Complementary 48 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-ATT-GGA-CGC-TTT-ACG-GAC-AAC-ATC-CTG-AAT-GCG 3'
 —S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-AAA-TGC-CTG-TTG TAG-GAC-TTA-CGC-S —

1

2

FIG.17A

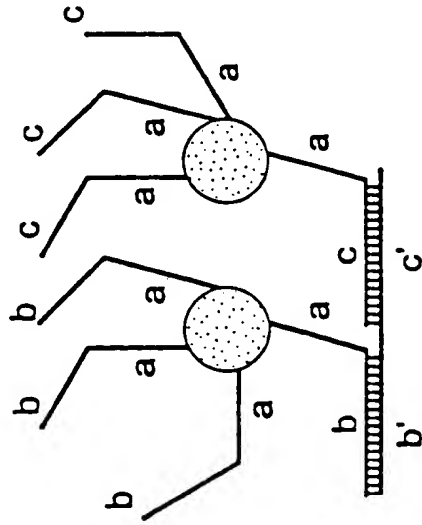


FIG.17B

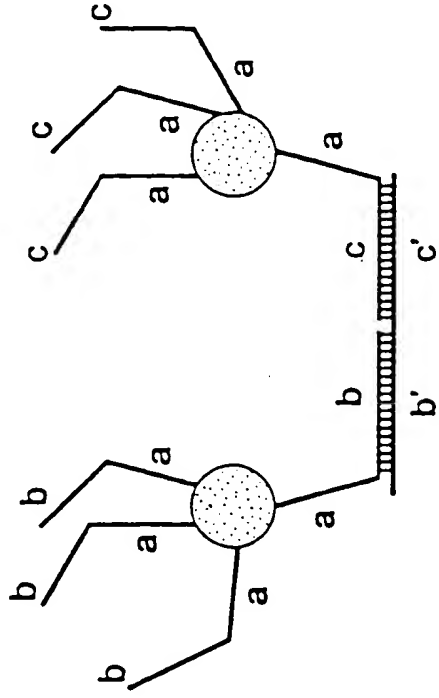


FIG.17C

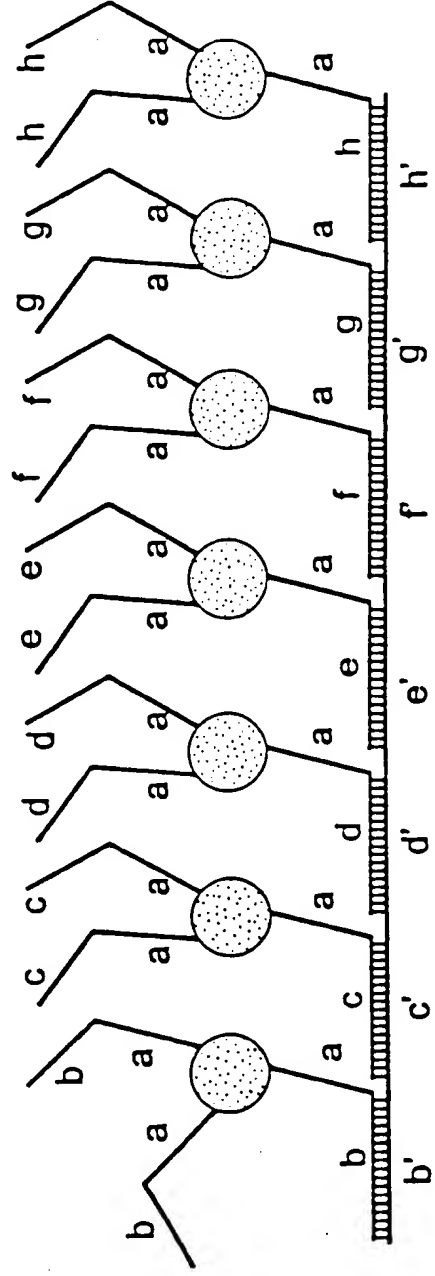


FIG.17D

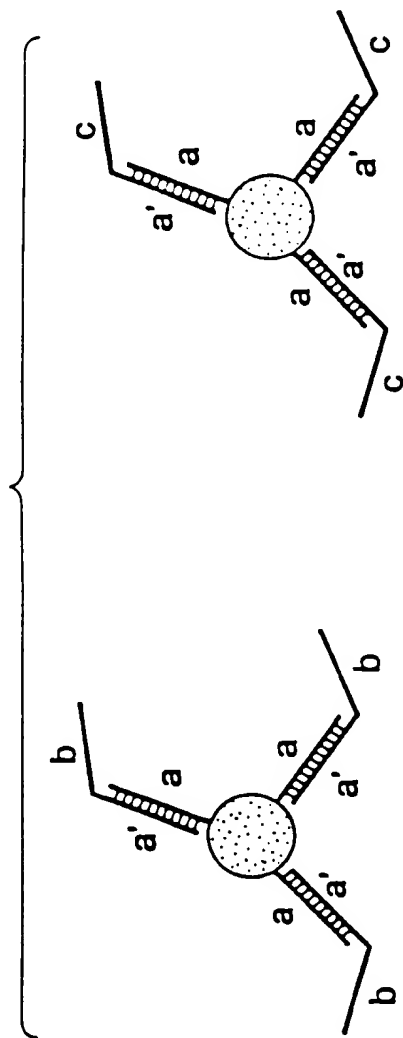


FIG.17E

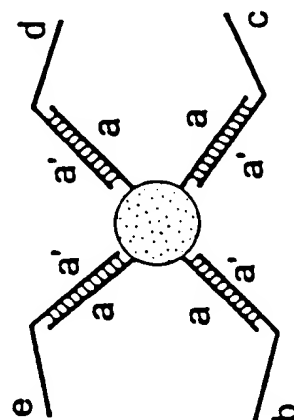


FIG.18

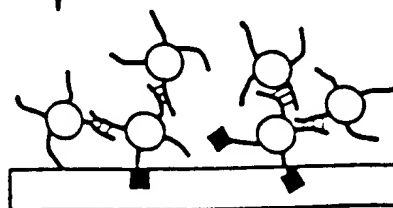
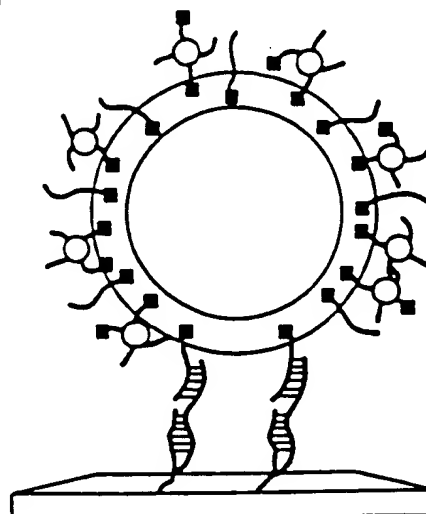
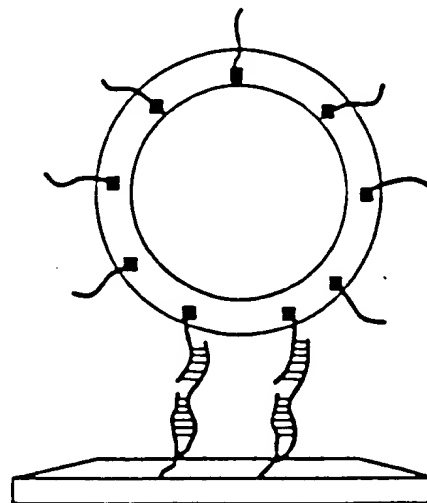


FIG.19A

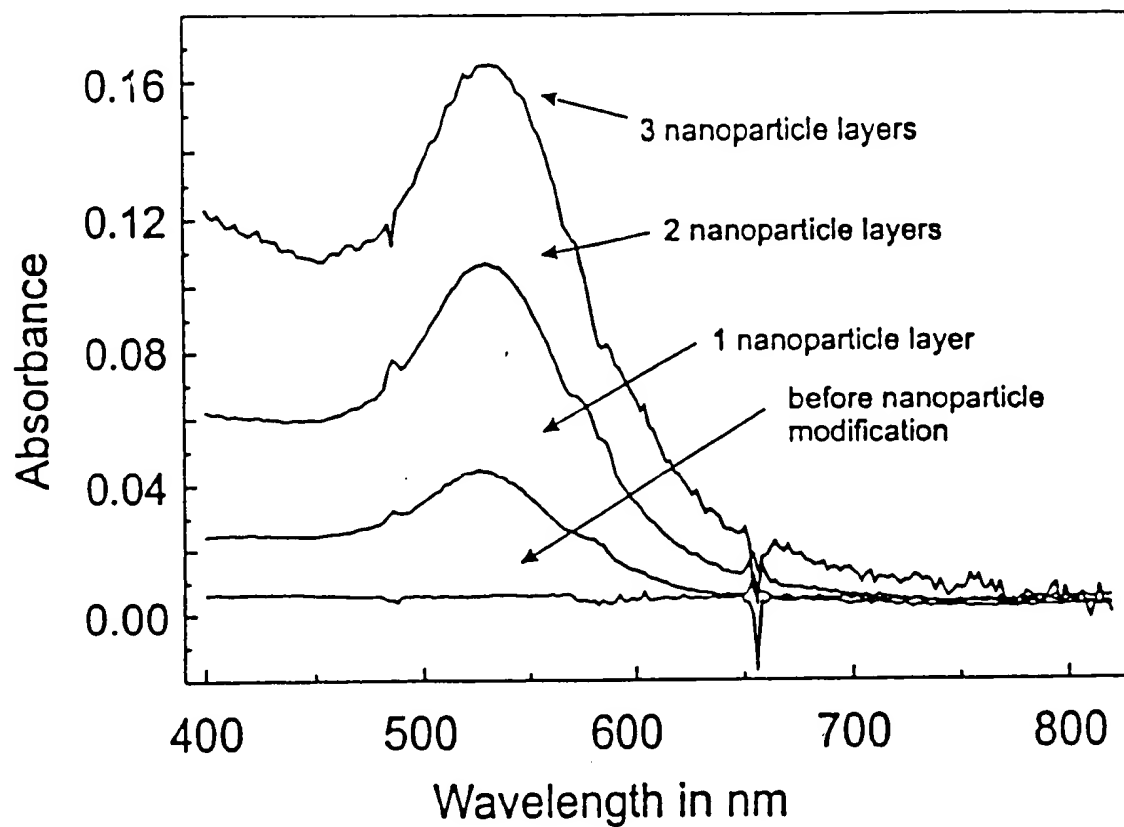


FIG.19B

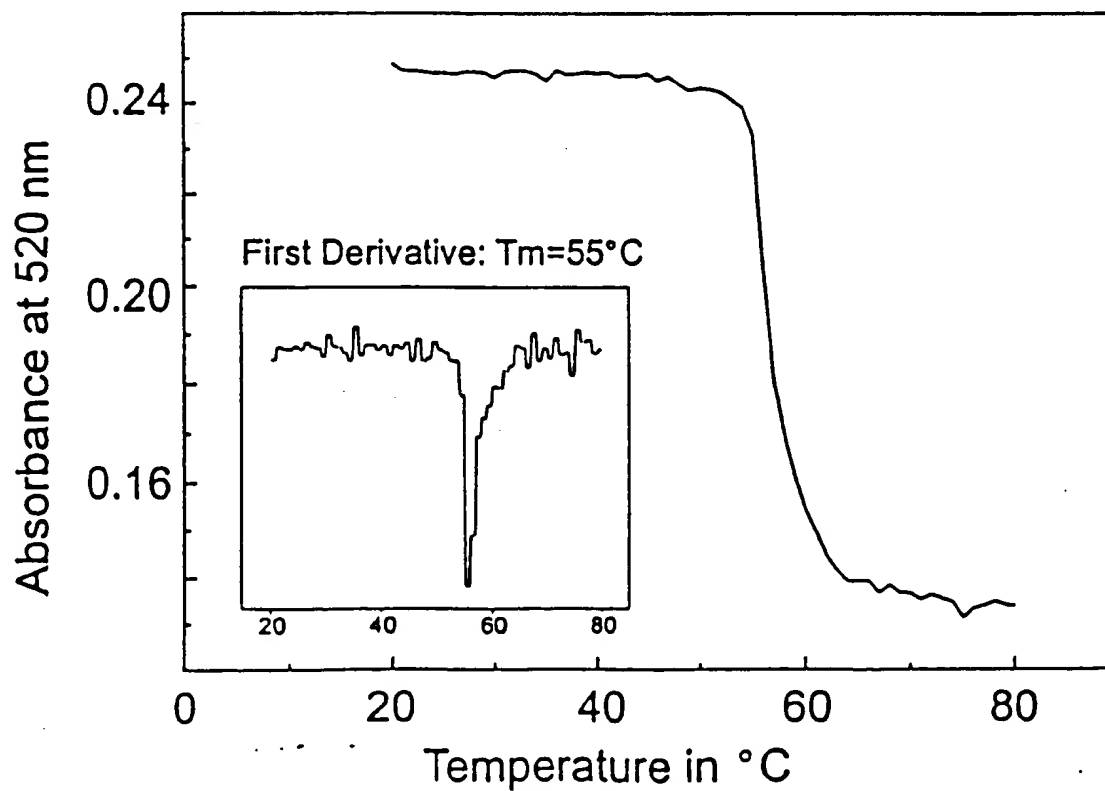


FIG.20A

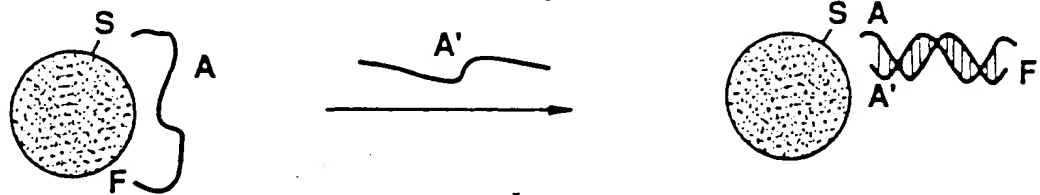
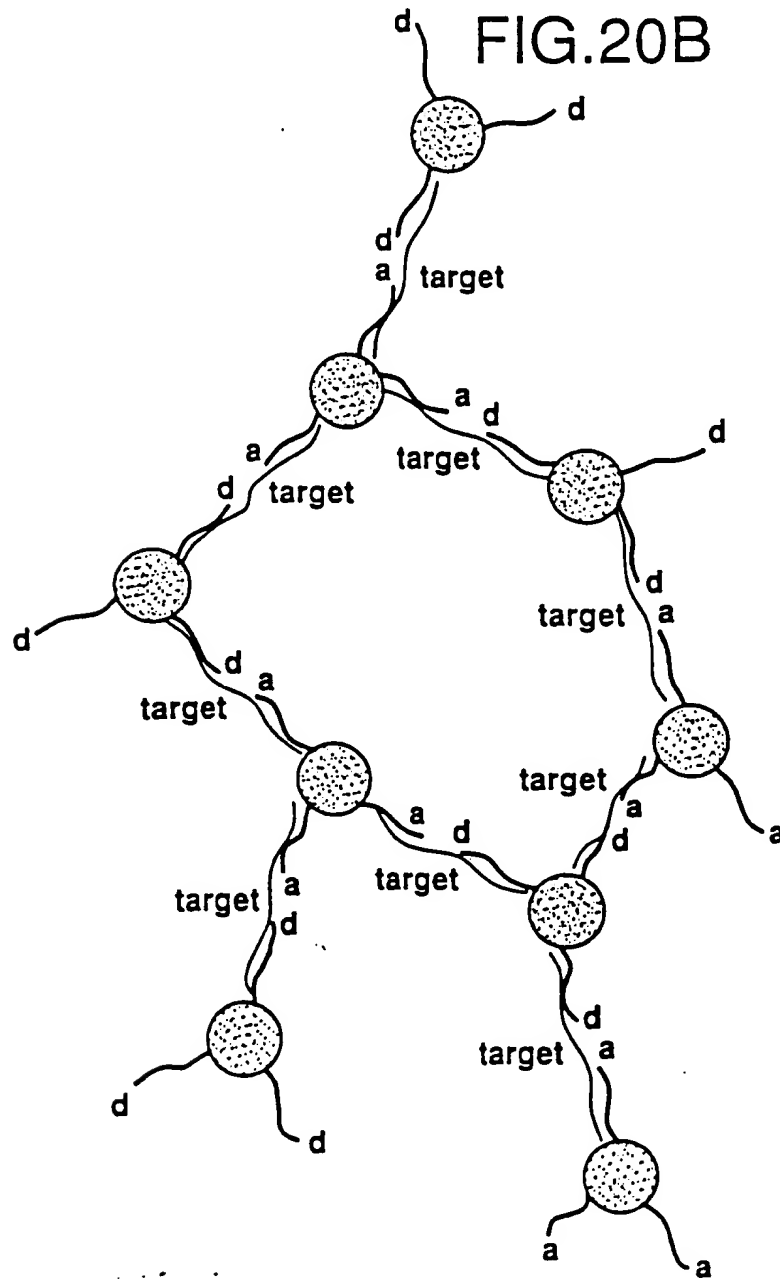
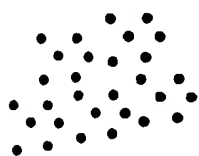


FIG.20B

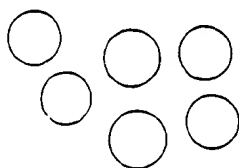


Oligonucleotide
modified Au
nanoparticle probes



Red

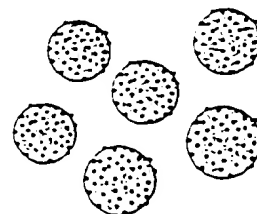
Fluorophore labeled
oligonucleotide modified
latex probes



White/Fluorescent

Target
Oligonucleotide

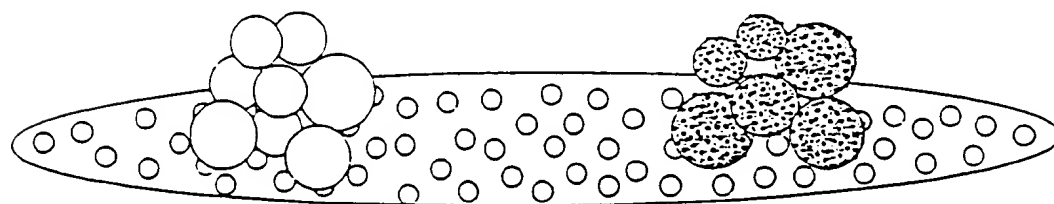
Au/Latex hybrid



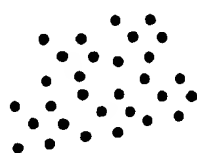
Pink/Non-fluorescent

No Target
Oligonucleotide

Target
Oligonucleotide



All Au probes pass
through membrane

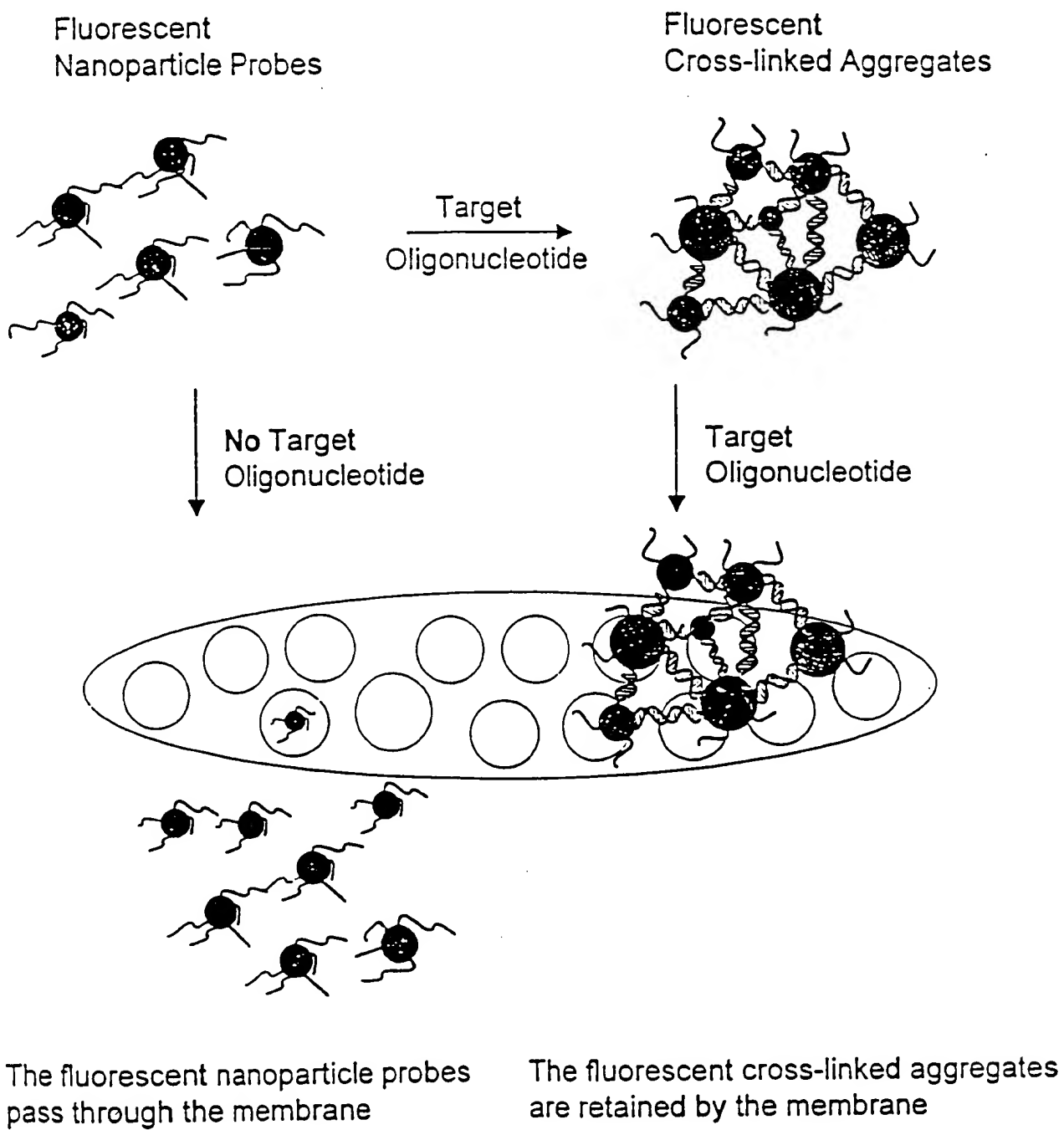


Excess Au probes
pass through
membrane



FIGURE 21

FIGURE 22



Anthrax PCR Product

5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT
3'C CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA
TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT
ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

141 mer Anthrax PCR product [SEQ ID NO: 36]


3' CTC CCT AAT AAC AAT [SEQ ID NO: 37]
3' TTA TAA CTA TTC CTA [SEQ ID NO: 38]
Oligonucleotide-Nanoparticle Probes

Blocker Oligonucleotides

3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT [SEQ ID NO: 39]
3' A TCT CTT CAT TAA TTA AGC AGT TGT [SEQ ID NO: 40]
3' TAT TCT TTT TAT AAT AGG TCC CAA TAT [SEQ ID NO: 41]
3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA [SEQ ID NO: 42]

Figure 23

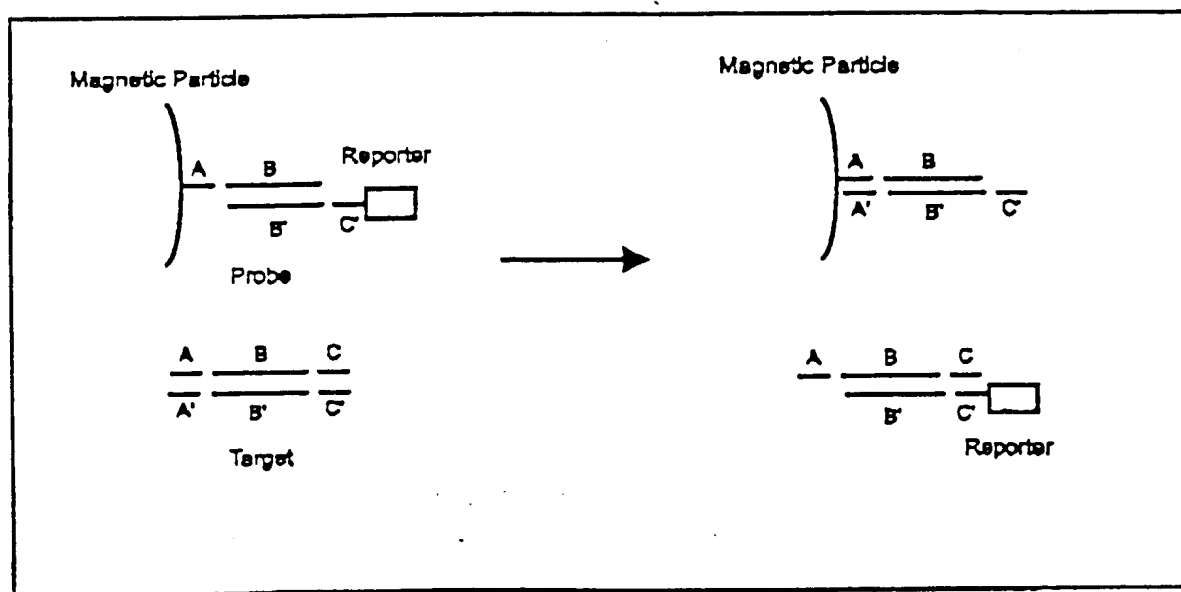
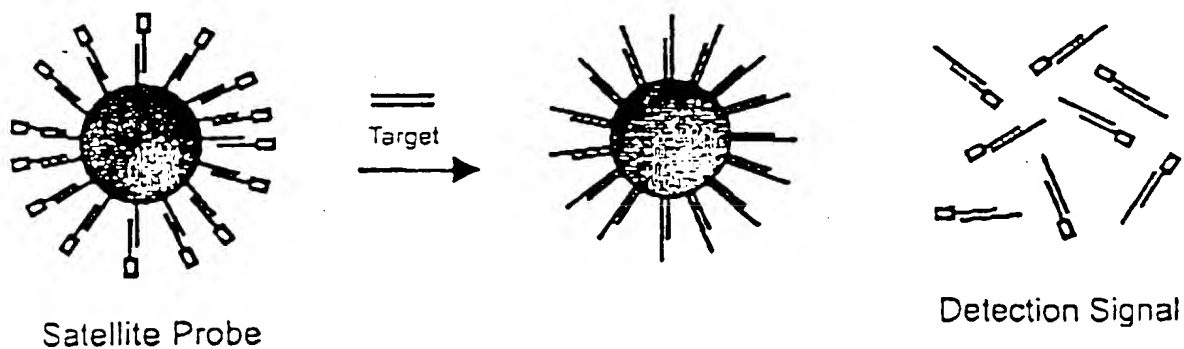


FIGURE 24

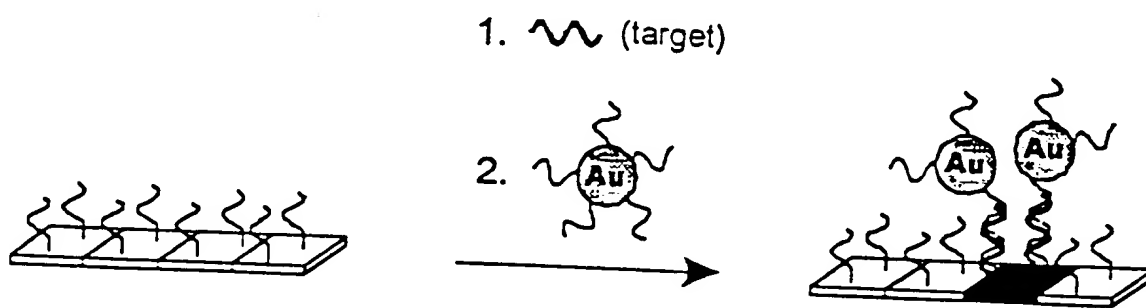


FIGURE 25A

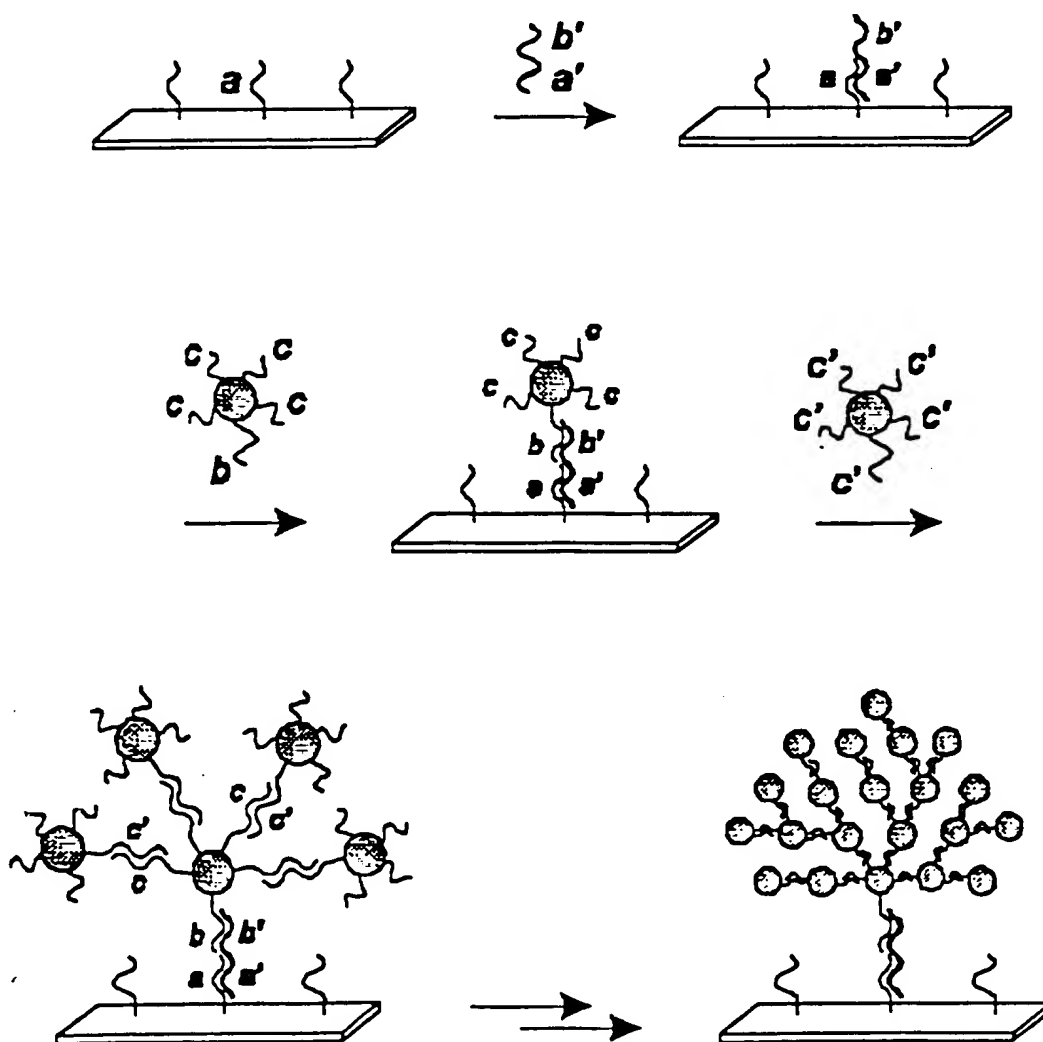
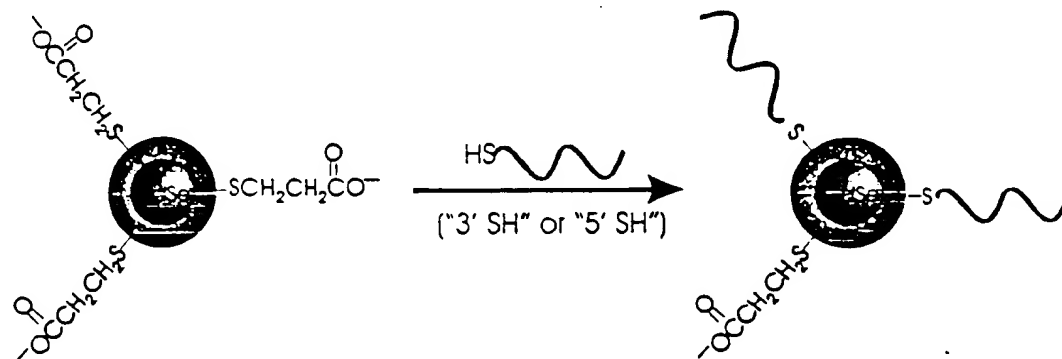


FIGURE 25B

A



B

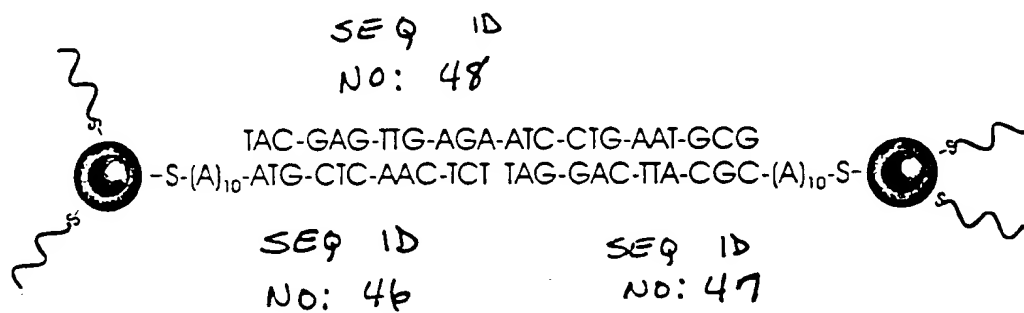


FIGURE 26

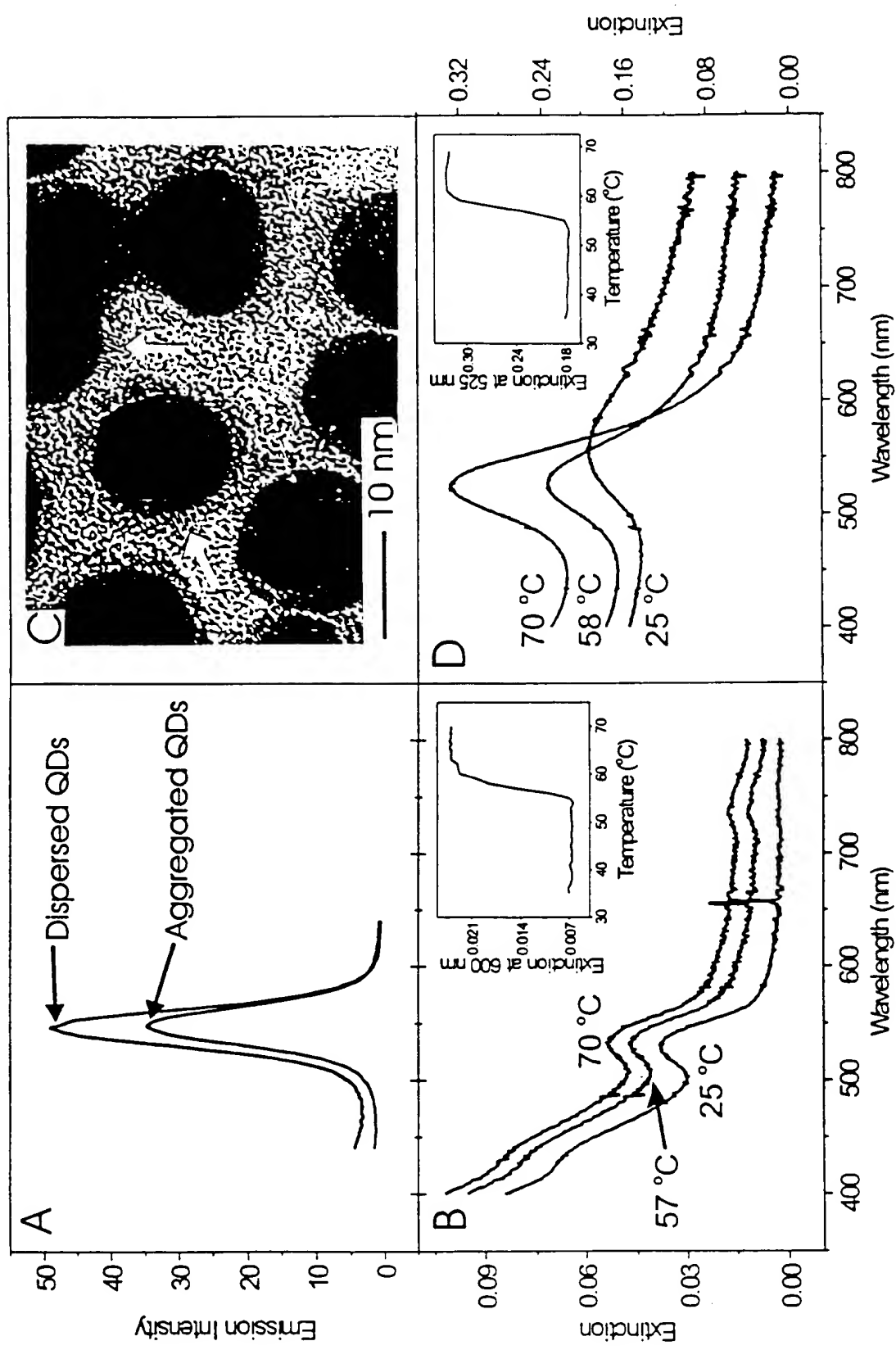


FIGURE 27

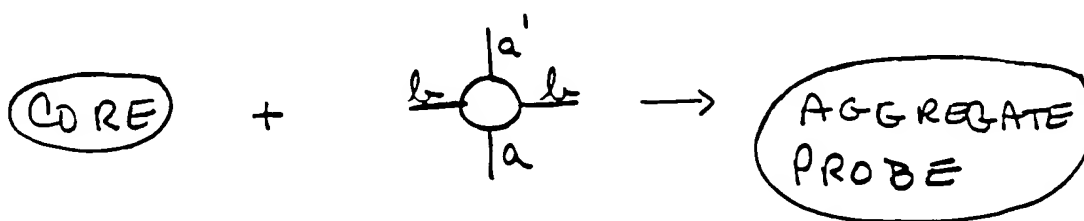
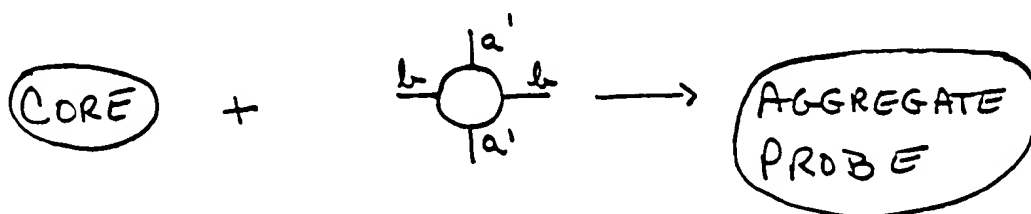
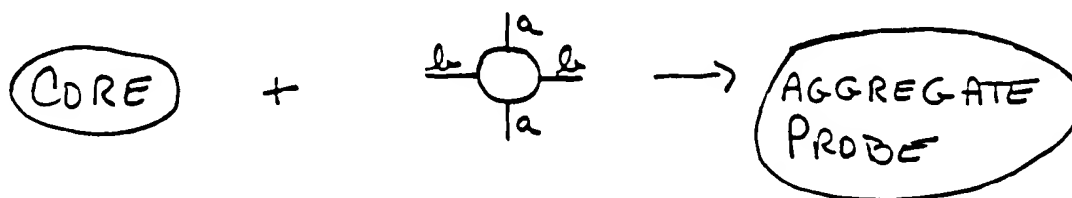
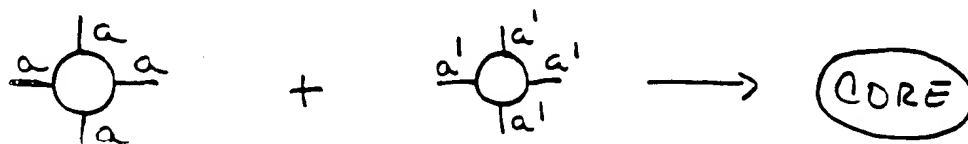


FIGURE 28A

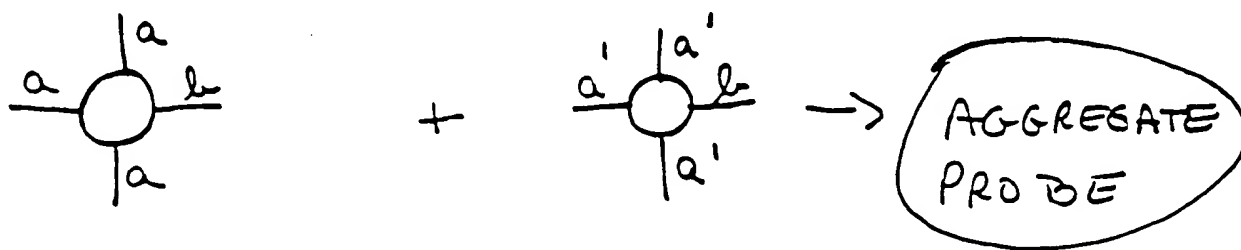


FIGURE 28B

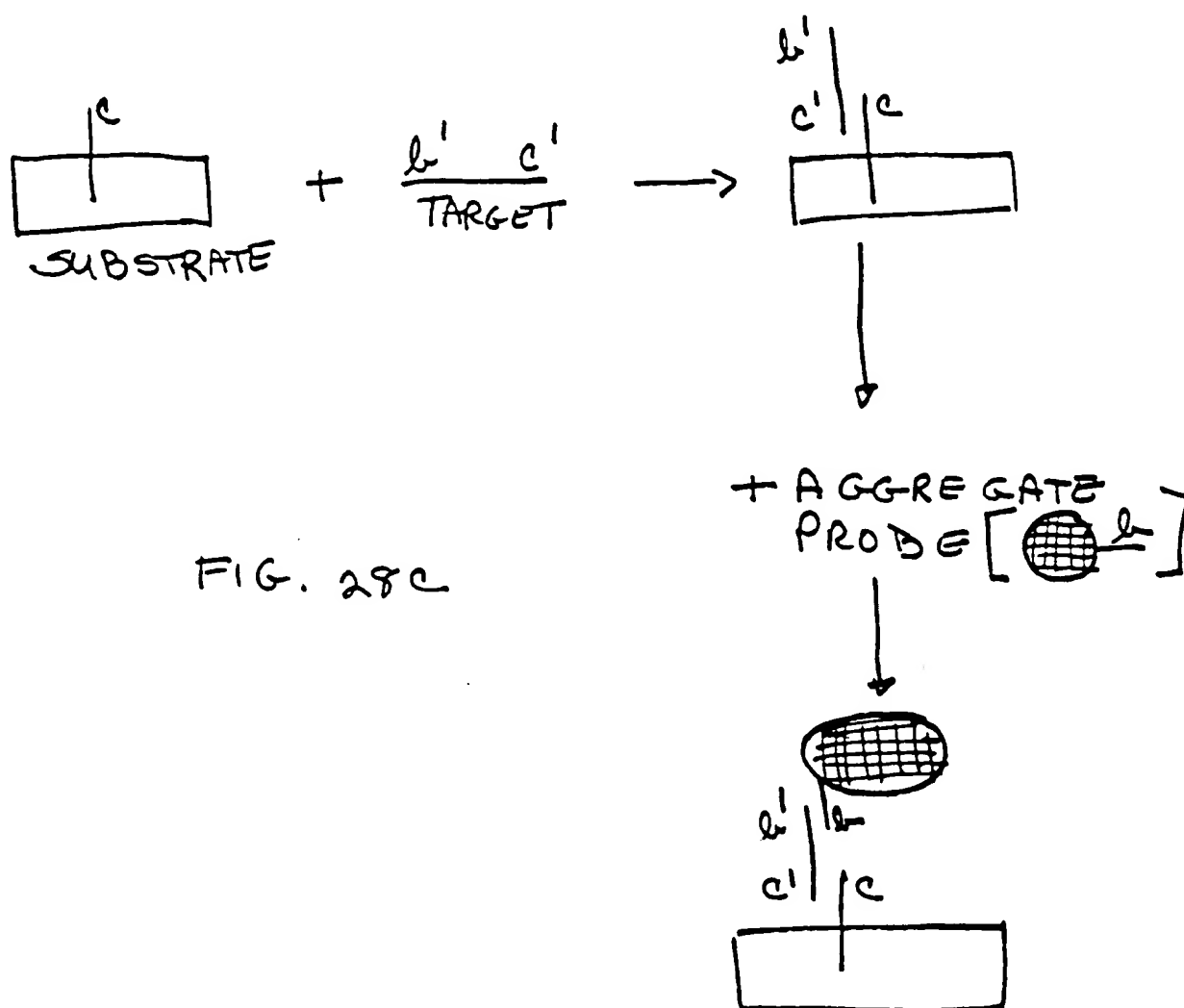
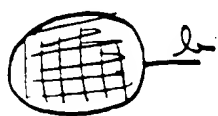



FIG. 28C


 AGGREGATE
 PROBE

+ $\frac{b' \quad c'}{\text{TARGET}}$ + 

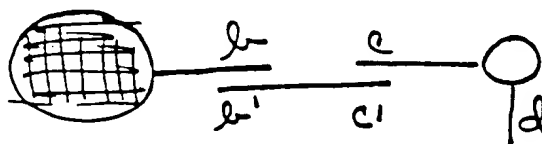
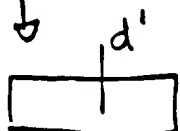
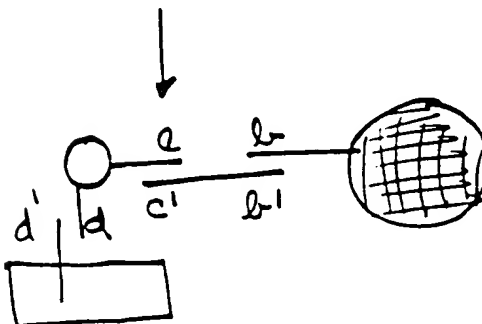


FIG. 29D

REMOVE EXCESS
 BY CENTRIFUGATION



+  SUBSTRATE



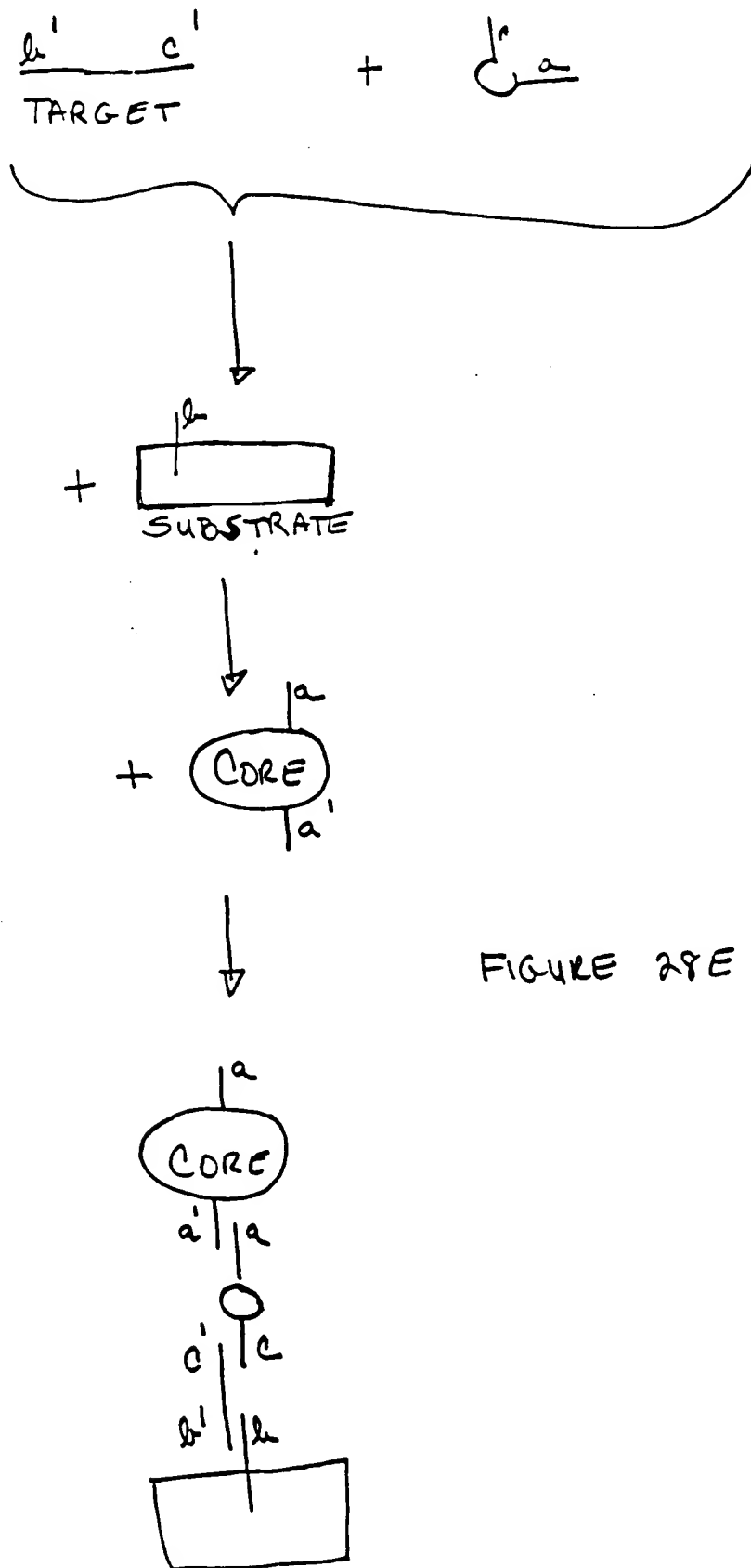


FIGURE 28E

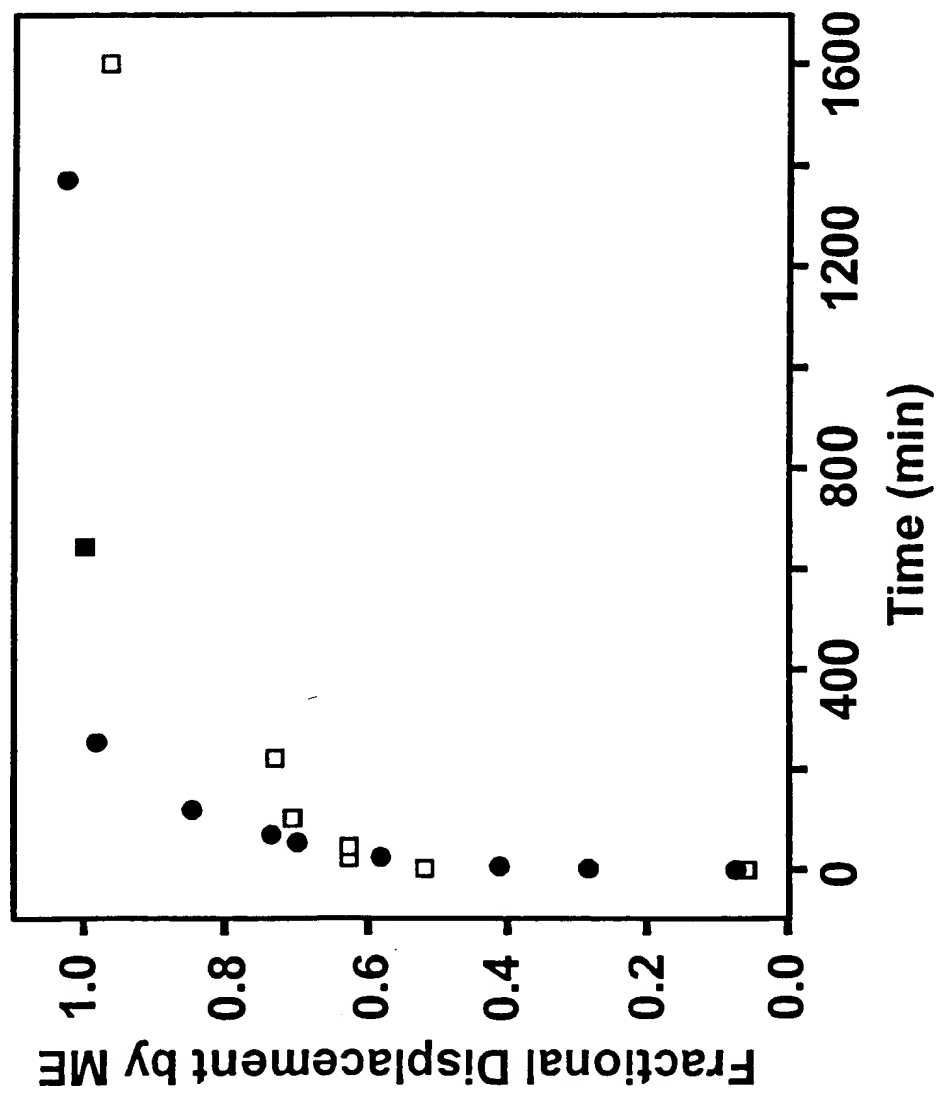


Figure 29

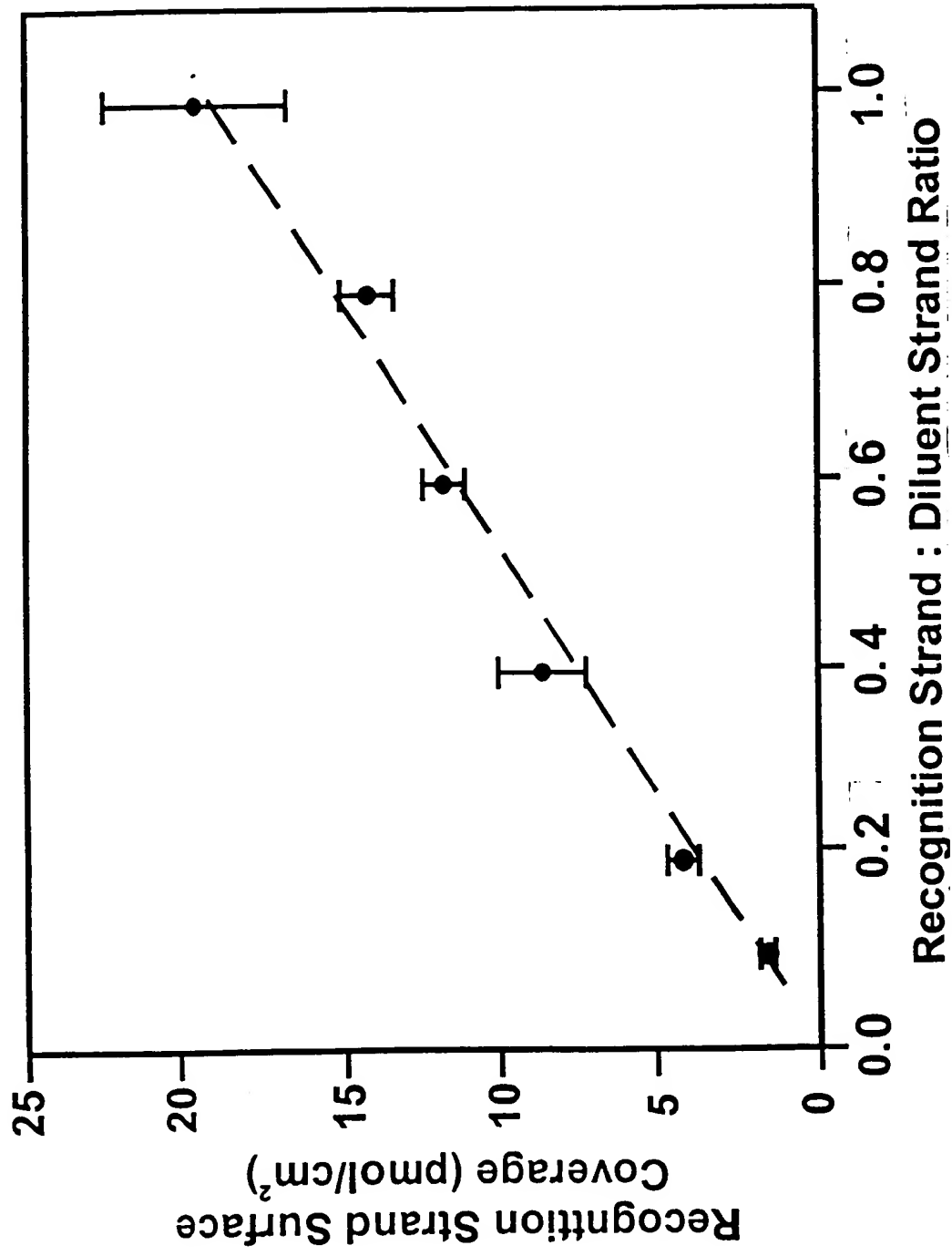


Figure 30

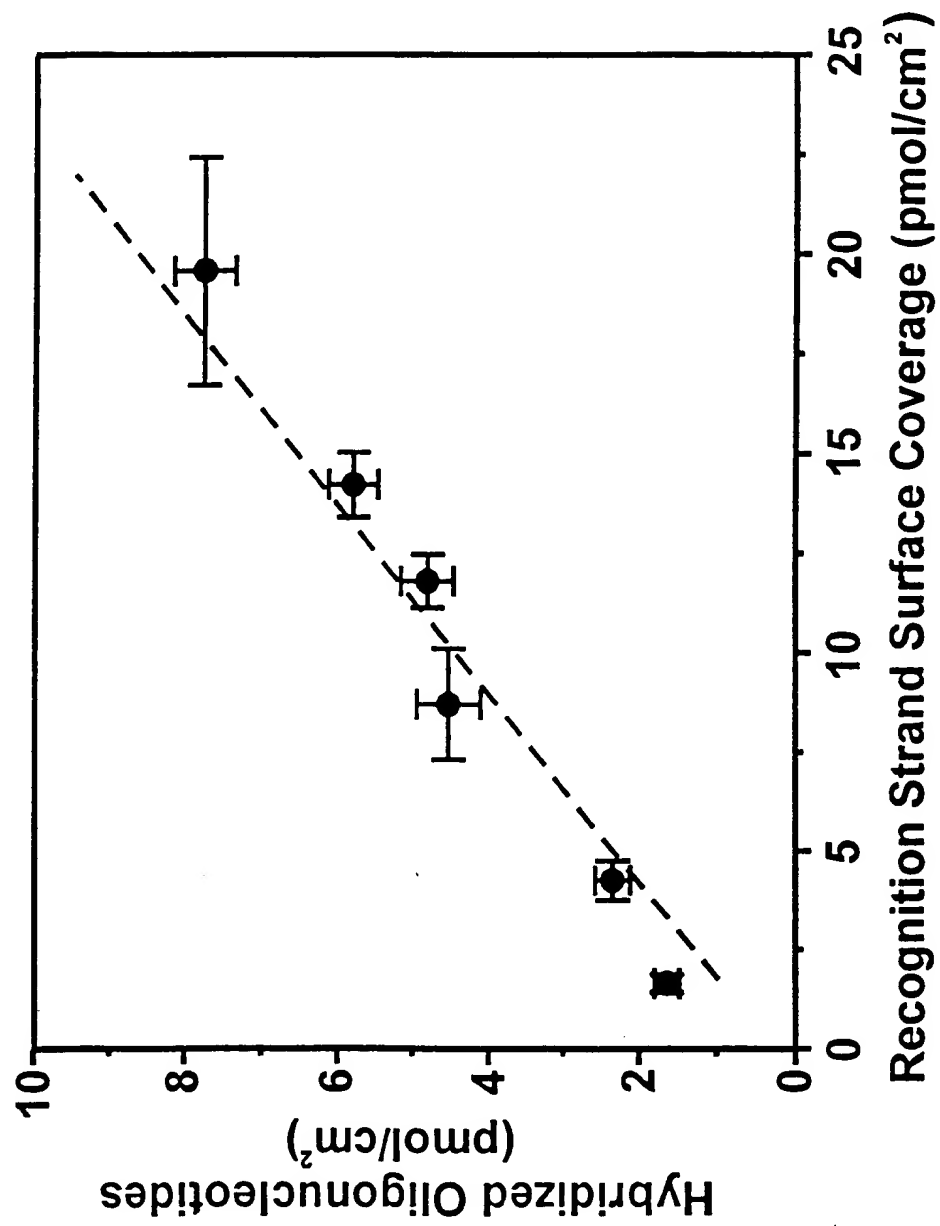


Figure 31

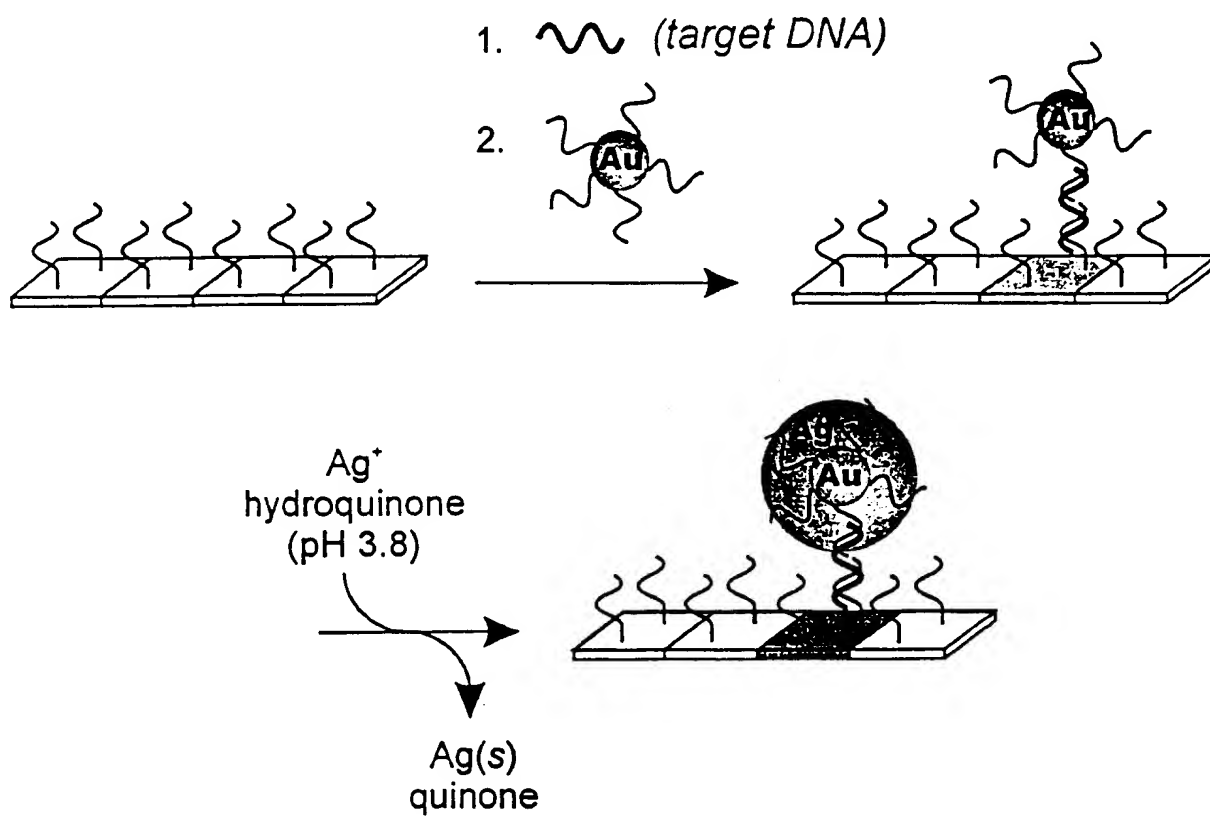
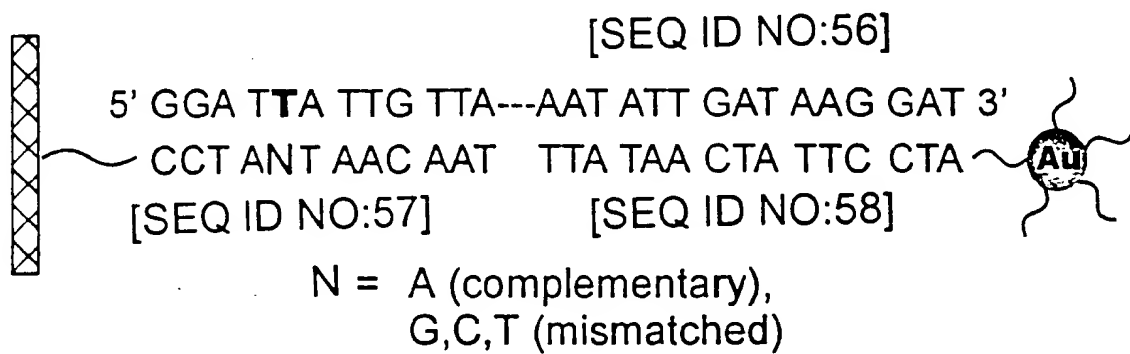


Figure 32

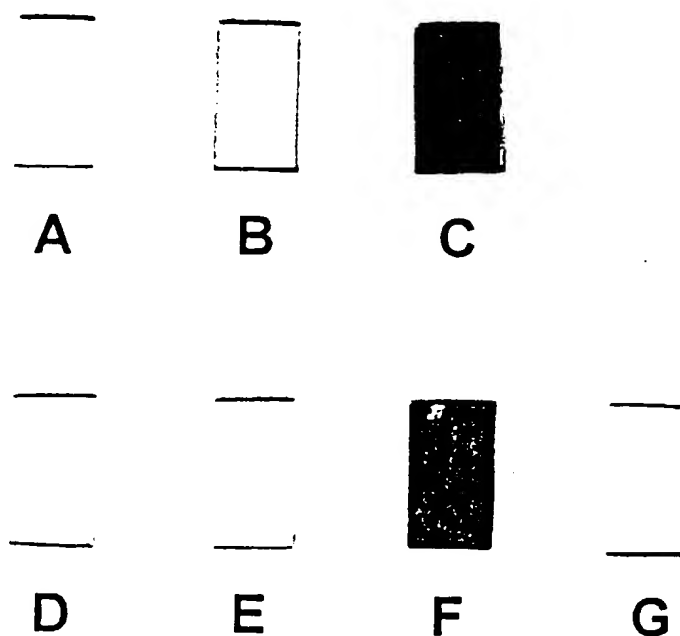


Figure 33

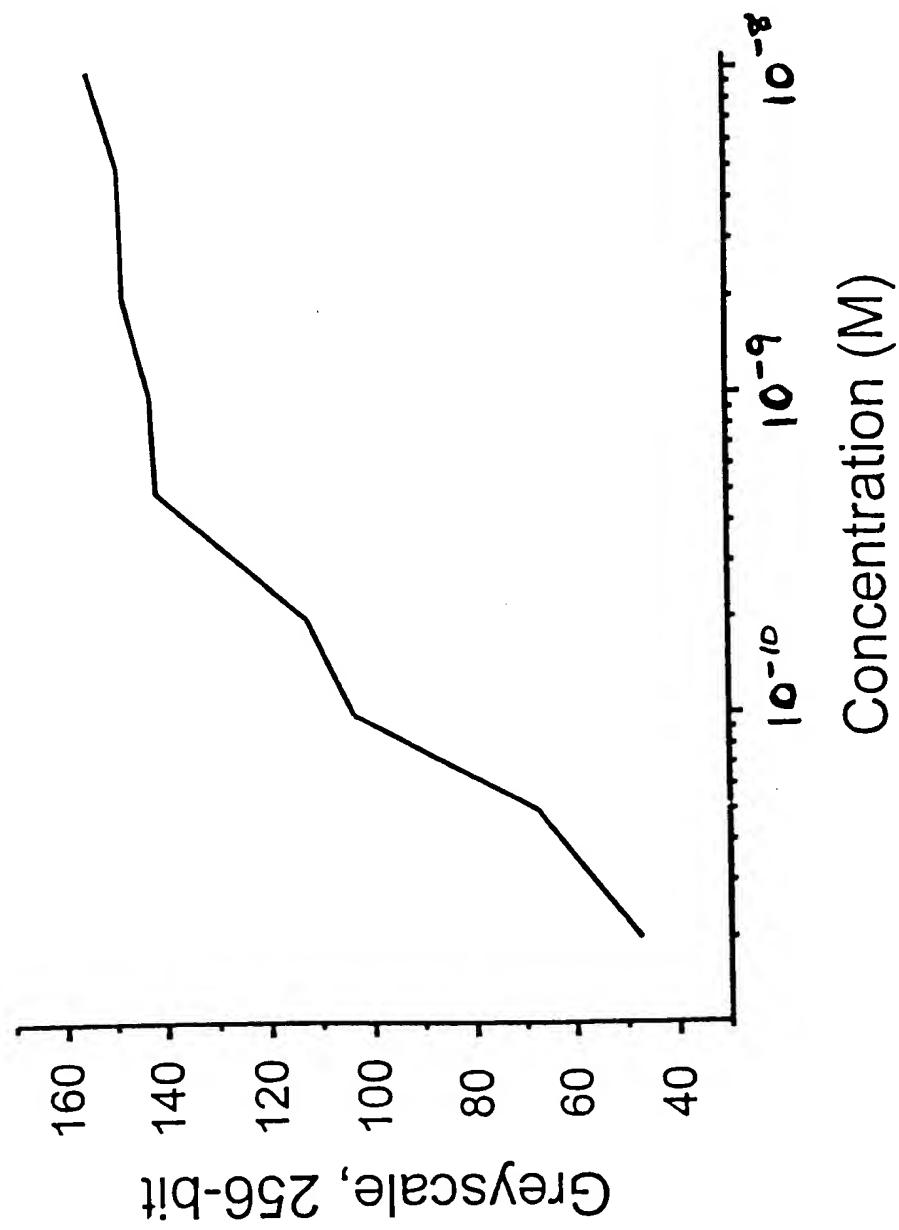


Figure 34

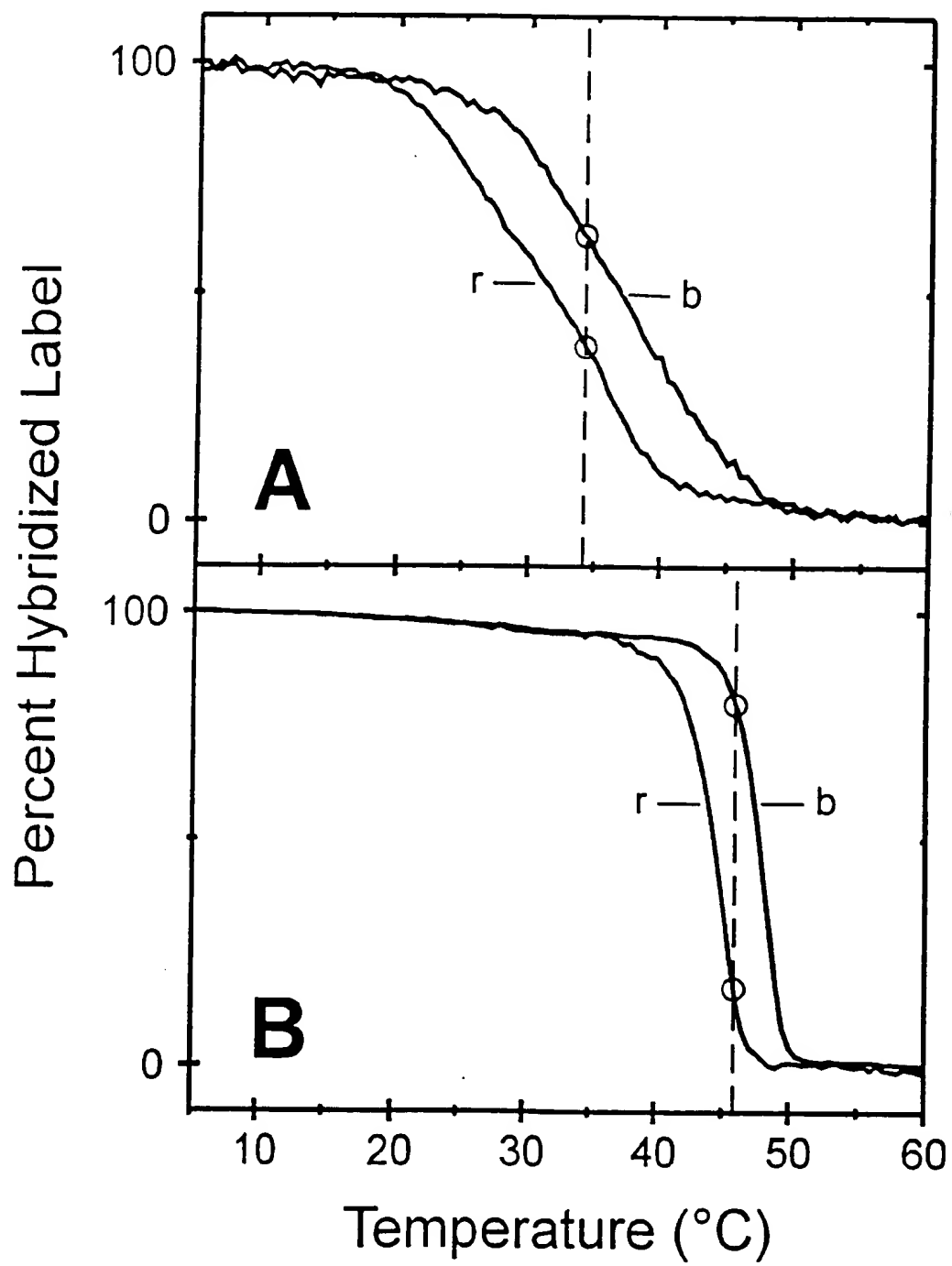
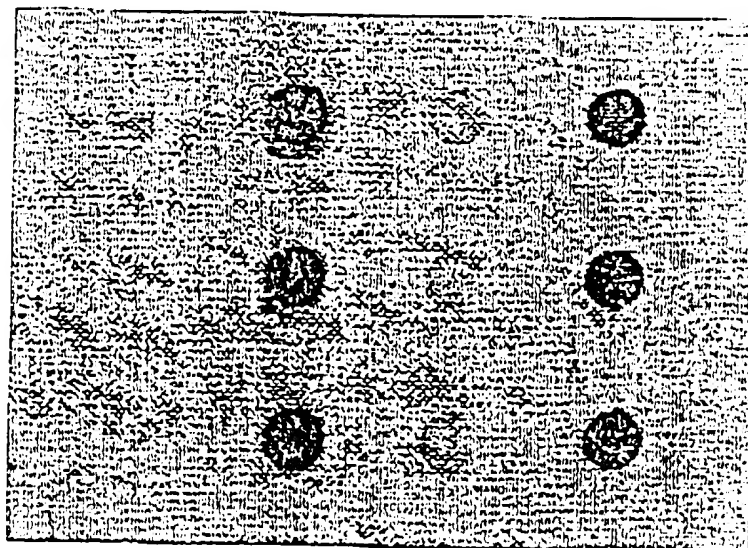


Figure 35

FIG. 36A

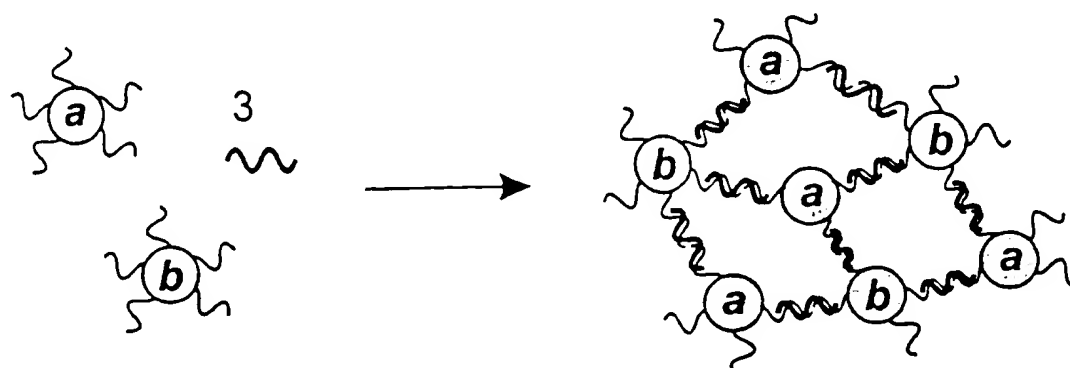


FIG. 36B



C A T G

A



B

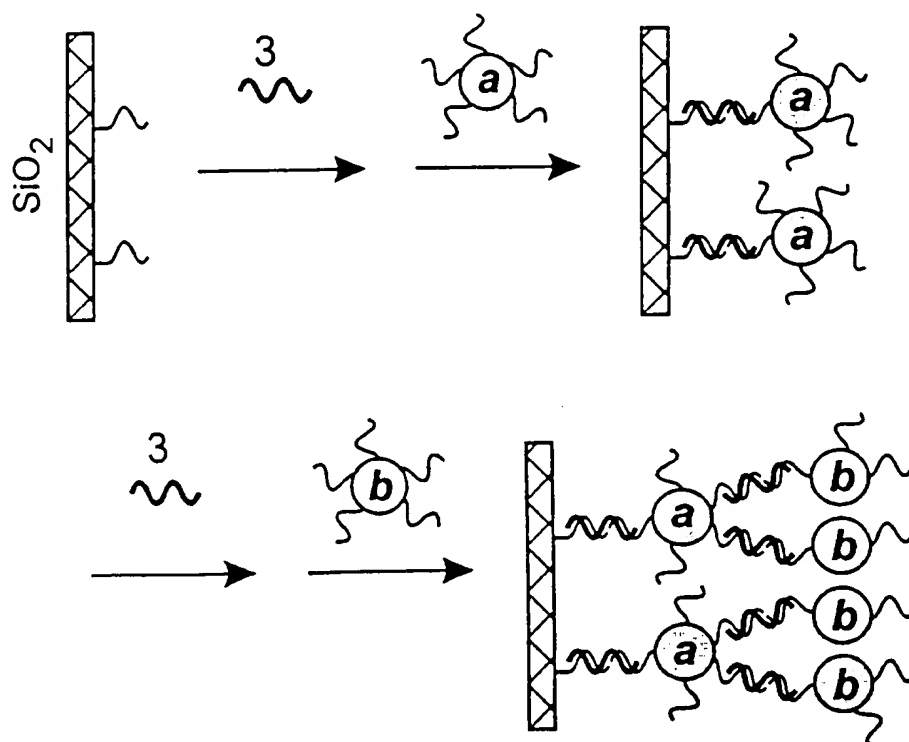


Figure 37

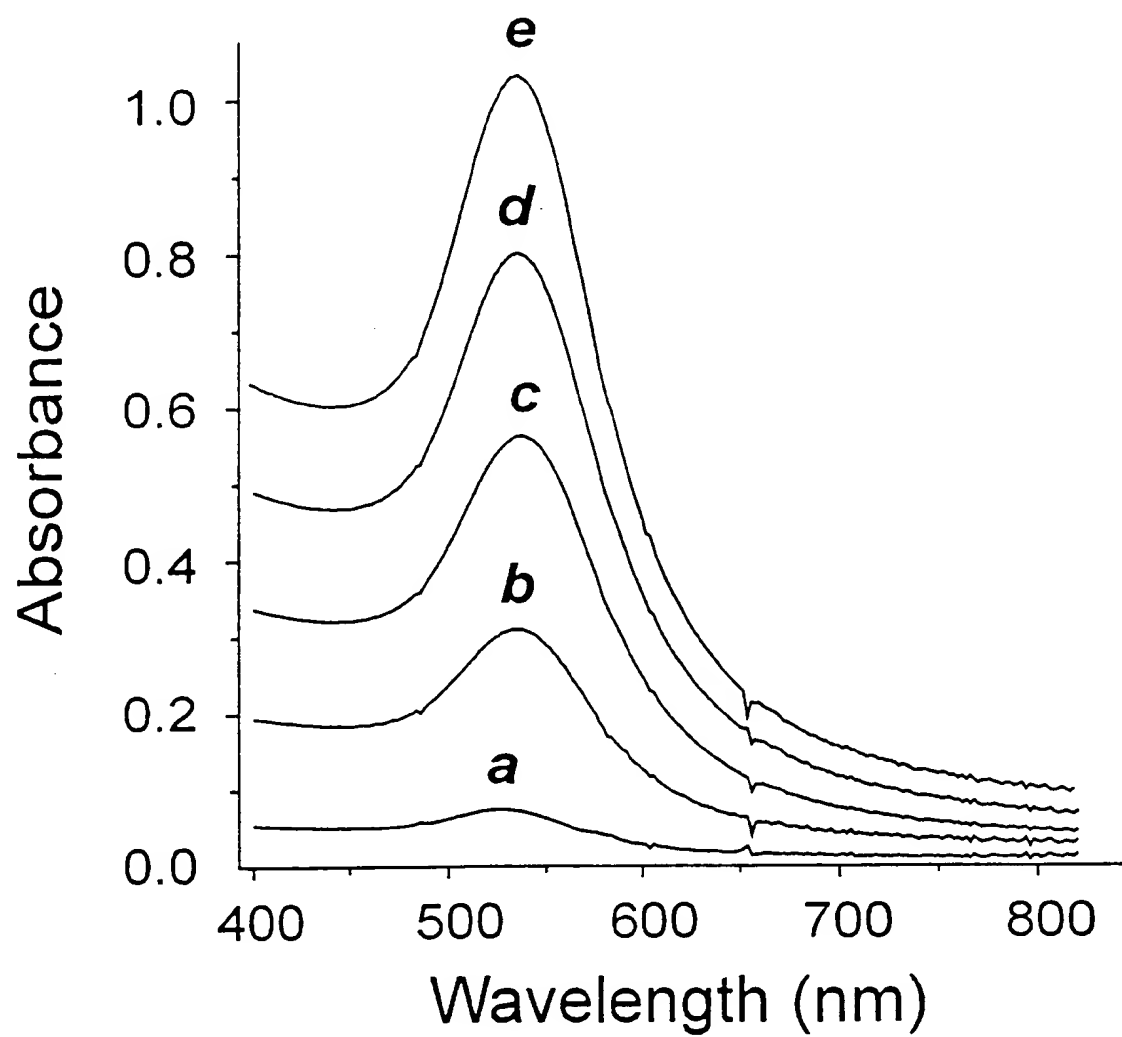


Figure 38A

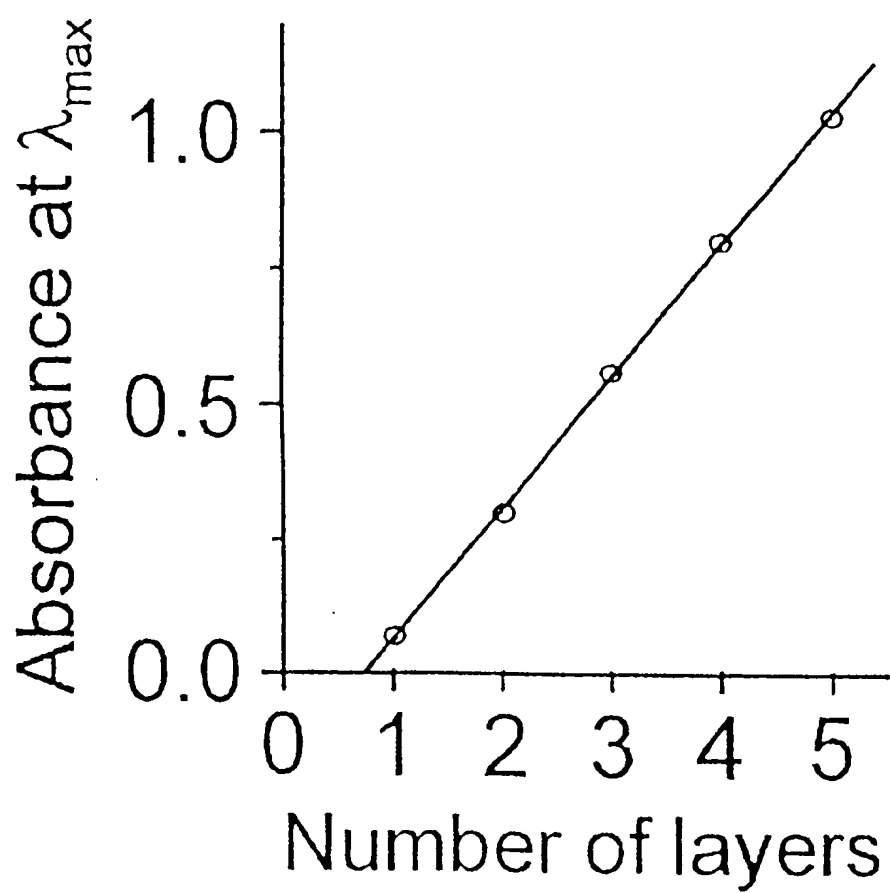


Figure 38B

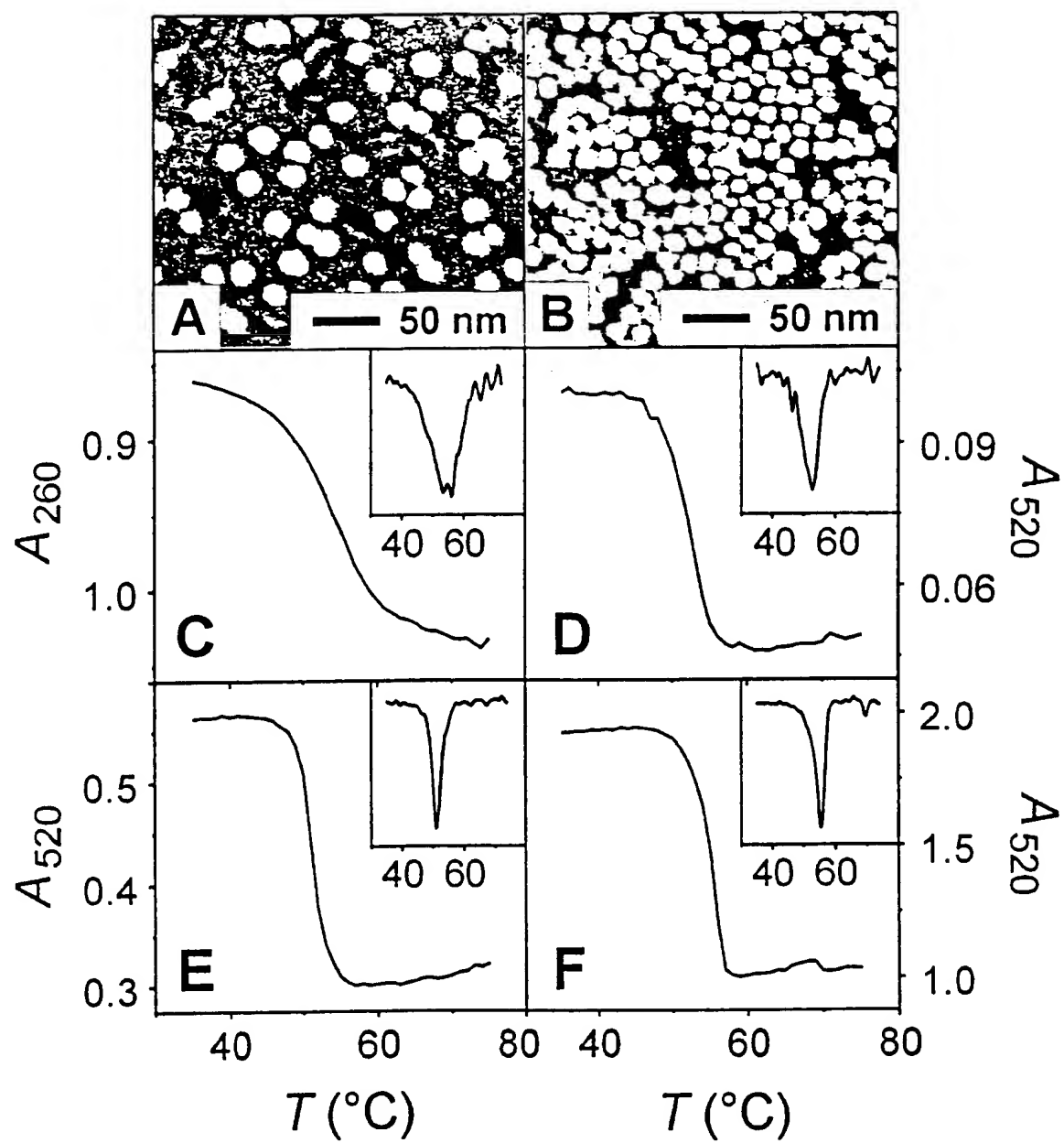


Figure 39

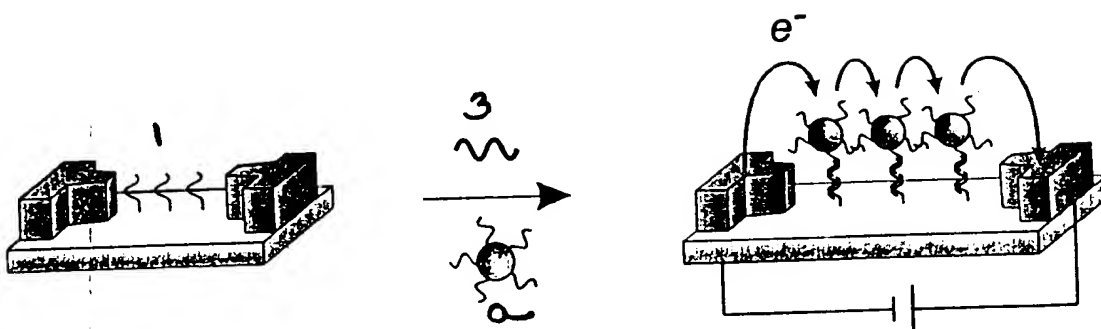
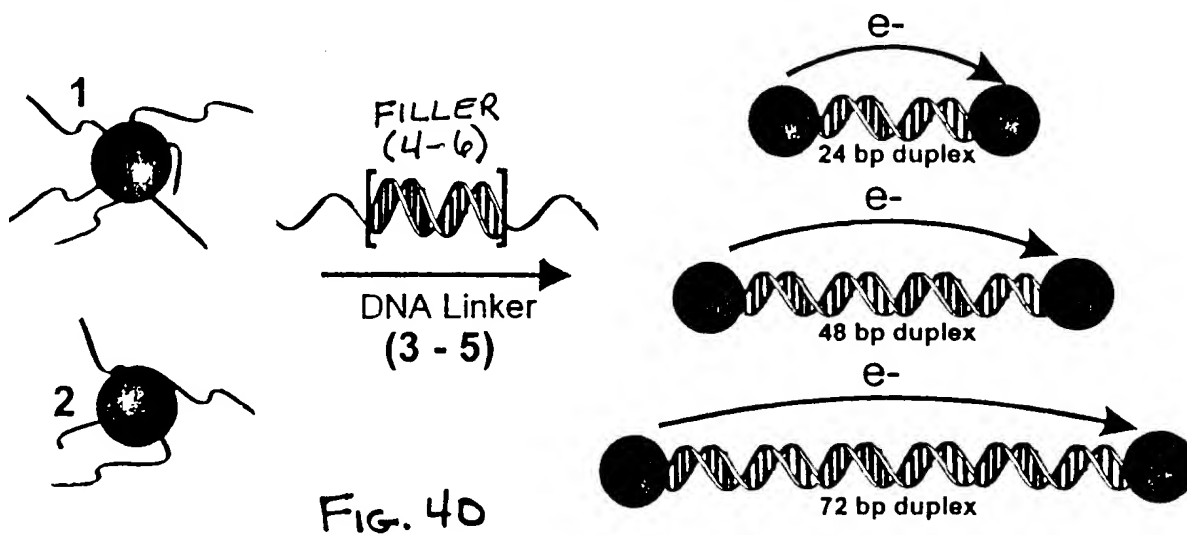


FIG. 41